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Promoting the adaptive behavior skills of students with autism: gauging educational programming and services

Stacy Slavens Volmer
Iowa State University

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Promoting the adaptive behavior skills of students with autism: Gauging educational programming and services

by

Stacy Slavens Volmer

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Carla Ann Peterson, Co-major Professor
Daniel Reschly, Co-major Professor
Barbara Ohlund
William D. Tilly
Norman A. Scott

Iowa State University

Ames, Iowa

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Iowa State University

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has met the dissertation requirements of Iowa State University

Signature was redacted for privacy.

Co-Major Professor

Signature was redacted for privacy.

Co-Major Professor

Signature was redacted for privacy.

For the Major Program

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CHAPTER 1. GENERAL INTRODUCTION

This section is organized into two primary sections. First, a rationale for the current study is presented, as well as the research questions that served to guide the study. Second, the organization of the dissertation is delineated.

Introduction

Research on long-term outcomes for individuals with autism documents a relatively bleak picture (Gillberg, 1991; Howlin, 2000; Stein et al., 2001). By adulthood, the majority of individuals with autism have not developed the adaptive skills necessary to function independently in society and many continue to display significant challenging behaviors that interfere with their inclusion in community environments. Due to these difficulties, many adults with autism are significantly dependent on family or third-party resources for support in major life activities related to employment, adult living, leisure, and social relationships. However, despite the fact that students with autism have adaptive behavior needs that are equally, if not more, significant than those of individuals with mental retardation (Gillham, Carter, Volkmar, Sparrow, 2000; Liss et al., 2001; Loveland & Kelley, 1991), the limited information available suggests that these needs are typically not addressed in educational programs for these students (Slavens, 1997). While researchers have demonstrated that a variety of intervention strategies can increase the independence of students with autism, it is unclear whether such strategies are being implemented in applied settings. Unfortunately, as Langone and Burton (1987) warn, "Professionals may inadvertently limit what a handicapped person can ultimately accomplish by waiting for adulthood to train for independence" (p. 161). By not targeting adaptive behavior needs in the educational programs of students with autism, we, as educators, are guilty of a great injustice. This injustice has pervasive repercussions in that it affects not only the individual with autism who is unable to participate and function fully in his/her community, but also families and society that must provide long-term care and assume a significant responsibility for these individuals throughout their lives.

This research project was conducted to fill a significant void in the professional literature. Specifically, that this project will provide information regarding the content and quality of special education programs for students with autism, the degree to which IEPs guide daily instructional activities, and factors that affect whether or not the adaptive

behavior needs of students with autism are addressed within these programs. It is anticipated that this information will facilitate positive outcomes for students with autism by documenting and evaluating current practices in designing and implementing adaptive behavior interventions and instructional activities for students with autism. This project was conducted to address two primary research questions: (1) What is the congruence between student need, IEP goals, teacher reported classroom interventions, and the actual amount of school time students with autism are engaged in adaptive behavior activities? and (2) What factors affect whether adaptive behavior is targeted in the educational programs of students with autism?

Dissertation Organization

This dissertation is organized into three primary parts. Chapter 2 provides a review of the literature relevant to the treatment and education of children with autism, beginning with an overview of the general characteristics of individuals with autism, typical course of the disorder, and research on etiology. Then, information is provided regarding long-term outcomes for individuals with autism, as well as factors affecting adult outcomes. The following section presents behavioral and education research on individuals with autism that illustrates the importance of addressing the adaptive behavior needs and challenging behaviors of individuals with autism through quality special education programming. Specifically, research conducted in several areas, including the adaptive behavior needs of individuals with autism, adaptive behavior interventions, the effects of environmental factors on the performance of these students, and the function of challenging behaviors, is summarized. Then, research related to the quality of special education programs for individuals with autism, as well as a variety of other disabilities is presented. Research studies examined in this area focus on factors influencing IEP development and special education placement decisions, procedural compliance as demonstrated in students' IEPs, and the internal consistency of IEPs. The final section in Chapter 2 provides a synthesis of what is known regarding the current state of educating students with autism, as well as a discussion regarding the importance of quality adaptive behavior programming and instruction for students with autism to facilitate long-term adult functioning.

Chapter 3 describes a study conducted to address the two research questions delineated above. The introduction provides the rationale for conducting research focusing on adaptive behavior programming for students with autism and the factors related to the whether or not the adaptive behavior of students with autism are addressed at school. The method section describes the sampling procedures used in this study, the measures used to collect data for this study, specific data collection procedures, and criteria for coding information obtained from subjects' IEPs, parent interviews, teacher interviews, and classroom observations. In addition, the statistical and qualitative analyses employed to answer the research questions underlying this study are described. The results section presents general descriptive information regarding the needs of student subjects, student IEPs, teacher-reported interventions, and classroom observational data, as well as parent and teacher beliefs about the importance of adaptive behavior skills and related educational programming. In addition, information is presented regarding the congruence between student needs and their educational programs, the relationship between whether or not students' needs were addressed in their educational programs and the amount of time they were engaged in adaptive behavior instructional activities at school, factors teachers reported as underlying team decisions regarding whether or not to write IEP goals in specific areas of adaptive behavior, the relationship between parent and teacher beliefs regarding the importance of adaptive behavior and the amount of time student subjects were engaged in domain-specific adaptive behavior instructional activities at school, and factors teachers reported as interfering with their ability to address the adaptive behavior needs of student subjects. The discussion section provides an overview of the results of this study. In addition, the limitations of the current study are discussed, as well as implications for practice and future research.

Chapter 4 presents general conclusions reached from the outcomes of the current study. Specifically, the results of this study are discussed within the context of available research on the current state of education for students with autism. In addition, limitations of this study, as well as implications for practice and future research directions are discussed.

CHAPTER 2. PROMOTING THE LONG-TERM INDEPENDENCE AND ADULT FUNCTIONING OF INDIVIDUALS WITH AUTISM

Research on long-term outcomes for individuals with autism documents a relatively bleak picture (Dempsey & Foreman, 2001; Gillberg, 1991; Howlin, 2000; Stein et al., 2001). By adulthood, the majority of individuals with autism have not developed the adaptive skills necessary to function independently in society and many continue to display significant challenging behaviors that interfere with their inclusion in community environments. Due to these difficulties, many adults with autism are significantly dependent on family or third-party resources for support in major life activities related to employment, adult living, leisure, and social relationships. Stein, et al. (2001) reported that approximately 70% of individuals with autism have poor outcomes in adulthood and "remain dependent on others in almost all aspects of living" (p. 355). Empirical evidence points to a number of characteristics that are correlated with poor outcomes for individuals with autism, including a childhood performance IQ below 70 and a lack of verbal communication skills by the age of 5 (DeMyer et al., 1973; Eisenberg, 1956; Freeman, Ritvo, Needleman, & Yokota, 1985; Gillberg, 1991; Gillberg & Steffenburg, 1987; Rumsey, Rapoport, & Sceery, 1985; Stein et al., 2001). In addition, the professional literature documents a variety of adaptive behavior skills that correlate highly with the level of community adjustment displayed by adults with autism (Felce & Emmerson, 2001; Freeman, Del'Homme, Guthrie, & Zhang, 1999). For example, Felce and Emmerson (2001) assert that "the presence of [adaptive behavior] deficits can exert a profound impact on an individual's quality of life and in large part defines his or her need for long-term support from service agencies." Despite the substantial body of literature documenting poor outcomes for the majority of individuals with autism, no information is currently available regarding the relationship between treatment/intervention implemented during childhood and adolescence with adult outcomes.

A widely held belief among professionals and advocates in the field of developmental disabilities is that the primary focus of special education is to facilitate adult independence (Brown et al.,1979; Donnellan, Mesaros, & Anderson, 1985; Hughes & Agran, 1993; Simpson & Sasso, 1992; Wehmeyer, 1991; Wheeler, Ford, Nietupski, Loomis, & Brown, 1980). For example, the Association for Retarded Citizens (ARC) holds the position that

"The purpose of education is to prepare all children and adolescents for success in adulthood. Students with mental retardation need to have experiences with and instruction in skills which enable them to work, live, and enjoy life in their community" (Wehmeyer, 1991, p. 2). Despite this belief, the relationship between special education services and long-term outcomes for individuals with autism remains relatively elusive. No empirical information is currently available regarding the role played by special education services in mediating the risk factors associated with poor outcomes for individuals with autism or in facilitating the adaptive behavior skills required for greater independence in adulthood. However, research regarding the quality of special education programs for students with autism, as well as those with behavior disorders, mental retardation, and learning disabilities, suggests that Individualized Education Programs (IEPs) are frequently not individualized based on student need (Fiedler & Knight, 1986; Reiher, 1992; Slavens, 1997; Smith, 1990; Smith & Simpson, 1989; Tymitz, 1981). Furthermore, despite the fact that students with autism have adaptive behavior needs that are equally, if not more, significant than those of individuals with mental retardation (Gillham, Carter, Volkmar, Sparrow, 2000; Liss et al.,2001; Loveland & Kelley, 1991), limited information is available regarding if and how these needs are being addressed in educational programs for these students.

This paper examines the importance of quality and appropriate special education programming in the area of adaptive behavior in facilitating positive adult outcomes for individuals with autism. Beginning with an overview of autistic disorder, information is then presented regarding: (a) adult outcomes for individuals with autism; (b) implications of educational and behavioral research; and (c) research on the quality of special education programming.

Autistic Disorder: A Brief Overview

Autism was first described by Leo Kanner in the 1940s. Based on his observation of 11 children, Kanner delineated the characteristic features of children whom he termed autistic. He noted that individuals with autism typically are unable to form relationships with people, demonstrate delays in speech development, appear aloof, are unable to use speech functionally, obsessively insist on sameness, engage in a limited repertoire of activities, lack imagination, and possess some highly developed, splinter skills (Kanner, 1943). This section

contains a brief overview of autism in terms of characteristics, prevalence, gender-ratios, and research on etiology.

Characteristics and Associated Features

Autistic Disorder as defined in the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) (American Psychiatric Association, 1994) is a lifelong pervasive developmental disorder characterized by qualitative impairment in social interactions and communication skills, as well as restricted repetitive and stereotypic patterns of behavior, interests, and activities (see Appendix A for diagnostic criteria). Several distinct features are also frequently found in association with autism, including deviant developmental rates and sequences, abnormalities in the thinking process, atypical sensory responses, adaptive behavior deficits, and challenging behaviors.

Developmental Rate and Sequence

In children with autism, the acquisition of skills typically does not follow typical patterns of development. Individuals with autism often have delays and develop skills in an atypical sequence in the areas of language, social skills, learning, adaptive behavior, and motor (Baker, 1993; Schopler, Reichler, & Lansing, 1980). In addition, mental retardation is evident in 70%-80% of individuals with autism (Dempsey & Foreman, 2001; Kamphaus & Frick, 1996; Mawhood & Howlin, 1999; Tager-Flusberg, Joseph, & Folstein, 2001).

Thinking Process

In this population, abnormalities in the thinking process are often present. Individuals with autism typically have difficulties in the areas of abstract thinking, judgment, awareness, organization, sequencing, understanding relationships between events and/or people, and synthesizing information (Baker, 1993; Schopler et al., 1995; Sigman, Ungerer, Mundy, & Sherman, 1987). Perseverative thinking is also common among individuals with autism, as well as a tendency to focus on the irrelevant or unimportant details of things.

Sensory Response

Atypical sensory responding is another feature frequently associated with autism. Individuals with autism often show strengths in some perceptual areas and weaknesses in others. There does not seem to be the balance across sensory modalities typical of most normally developing individuals. These individuals also have difficulty integrating the

information they receive from different senses (Frith & Baron-Cohen, 1987). Individuals with autism are also characterized by their atypical and inconsistent responses to different sensory stimuli.

Adaptive Behavior

In addition to the core adaptive behavior deficits in social and communication skills experienced by individuals with autism, many individuals in this population have significant deficits in the areas of eating, dressing, toileting, and other self-help skills. Other areas of adaptive behavior deficits characteristic of individuals with autism include recreational, leisure, domestic, and vocational skills (Simpson & Sasso, 1992; Freeman et al., 1999).

Challenging Behaviors

Recent estimates suggest that as many as 40% of individuals with autism engage in challenging behaviors (Boomer & Garrison-Harrell, 1995). In addition, 28% of individuals with autism engage in some form of self-injurious behavior (Iwata, Zarcone, Vollmer, & Smith, 1994). Examples of challenging behaviors exhibited by individuals with autism include tantruming, head banging, self-choking, pica, physical aggression, elopement or running away, vomiting and reingesting food, eye gouging, and stereotypic motor behavior (Dunlap, Koegel, & Egel, 1979; Ruble & Dalrymple, 1996).

Prevalence and Gender Ratio

According to the DSM-IV, the prevalence of autistic disorder is 2 to 5 cases per 10,000 persons (APA, 1994). However, more recent studies suggest that the prevalence of autism may be as high as 1 in 1000 (Gillberg, 1999) to 1.5 in 1000 (Kamphaus & Frick, 1996). In a review of epidemiological studies of autism published between 1966 and 1997, Gillberg (1999) documented that the reported prevalence of autism has increased significantly over the past four decades. Specifically, reported prevalence rates have increased systematically from 4.4 per 10,000 (1966-1973) to 4.9 per 10,000 (1974-1981) to 7.7 per 10,000 (1984-1989) to 9.6 per 10,000 (1990-1997). Speculation regarding the reasons underlying the increased prevalence rates of autism include changes in diagnostic criteria and an increased awareness of autism (Gillberg, 1999; Tanguay, 2000). Despite the reported increase in the prevalence rate of autistic disorder, empirical evidence suggests that the

gender ratio of autism has remained relatively stable. Specifically, rates of autism are approximately 3 to 5 times higher in males than females (APA, 1994; Gillberg, 1999).

Etiology

Considerable questions remain regarding the etiology of autism. Over the past five decades, researchers have offered explanations such as genetics, organic brain dysfunction, viral infections, immune dysfunction, increased serotonin levels, brain disorders, and pre- or perinatal brain damage for the underlying causes of autism (Geller, Ritvo, Freeman, & Yuwiler, 1982; Haring, McCormick, & Haring, 1994; Mackowiak, 2000; Tsai, 200; Wolf-Schein, 1996). For example, neurological or other general medical condition, such as encephalitis, phenylketonuria, tuberous sclerosis, fragile X syndrome, anoxia during birth, or maternal rubella, are sometimes found in association with autism (Tanguay, 2000). In addition, seizures may develop (particularly in adolescence) in as many as 25% of cases" (APA, 1994 p. 68). However, specific medical conditions are present in only 10%-30% of individuals with autism (Dempsey & Foreman, 2001; Tanguay, 2000). Recent medical studies indicate the possibility that as many as 10 specific genes are associated with the autism (Rutter, 2000). Overall, the consensus among medical experts is that no one specific variable causes autism. Rather, it is a combination of biological factors that contribute to the manifestation of the problems characteristic of autism (Wolf-Schein, 1996).

Adult Outcomes of Individuals with Autism

In the late 1970s, educators placed relatively little emphasis on the long-term needs of students with autism. In fact, the typical practice in educating individuals with autism during this period was to place them in self-contained classes, segregated from their typical peers, where the primary focus was on the remediation of academic skills (Simpson & Sasso, 1992). Unfortunately, these programs "often result[ed] in the delivery of instruction which [was] nonfunctional, artificial, and inappropriate for their chronological age" (Brown et al., 1979, p. 83). Over the past two decades, researchers and educators have become increasingly cognizant of the adaptive behavior needs of individuals with autism, as well as the importance of quality special education programming to facilitate the long-term, independent functioning of these individuals in the community (Blau, 1985; Howlin, 2000; Marcus & Mesibov, 1987). The primary impetus for this shift has come from research documenting the

dismal adult outcomes obtained by the majority of individuals with autism. For, as Simpson and Sasso (1992) asserted, "Young men and women with autism who leave school without job, self-care, and independent living skills spend their lives in segregated settings more often than individuals who have acquired functional skills" (p. 9). This section provides a summary of the literature on adult outcomes for individuals with autism and factors related to adult outcomes.

Outcome Studies

Over the past four decades a growing body of literature has emerged documenting the adult outcomes of individuals with autism. In this literature, adult outcome is typically conceptualized as the degree of variation from "normal". Individuals are considered to have obtained good outcomes when their functioning is normal or near normal across vocational, domestic, and social domains. Conversely, poor or very poor outcomes represent pervasive dependence on others across these domains (Gillberg, 1991). While this literature is replete with a variety of methodological weaknesses, such as nonrandom samples, small sample sizes, subject attrition, and gross measures of outcome (Lotter, 1978; Szmarti, Bartolucci, Bremner, Bond, & Rich, 1989; Howlin, 2000), the results obtained by these studies are significantly consistent. Specifically, few individuals with autism obtain normal or near normal levels of independence in adulthood. In contrast, the vast majority of individuals with autism obtain very poor outcomes in adulthood. In fact, empirical evidence suggests that approximately 70% of individuals with autism have poor or very poor outcomes in adulthood and remain significantly dependent on family members and/or adult service providers (Stein et al., 2001). However, estimates of poor or very poor outcomes for adults with autism vary significantly from 56% to 100% (Gillberg, 1991; Gillberg, 1998; Howlin, 2000; Ruble & Dalrymple, 1996). This section presents a summary of the literature on adult outcomes of individuals with autism. The outcome studies are organized based on target population. Specifically, information is presented regarding outcome studies targeting individuals with autism and individuals with Asperger's syndrome or high functioning autism, as well as a study that made direct comparisons between the two groups.

Outcome Studies Targeting Individuals with Autism

Adults with autism served as the target population for a variety of outcome studies conducted over the last forty years. Results of these studies suggest that 59% to 100% of individuals with autism experience poor to very poor outcomes in adulthood. This section describes four outcome studies conducted over the past thirty years, as well as two studies that summarized research on outcomes of individuals with autism.

Kanner (1973) conducted a follow-up study of 96 individuals with autism with whom he had been involved during childhood. The subjects in this study ranged in age from 20 to 30 years and had been diagnosed with infantile autism. Overall, Kanner (1973) reported that 87% of the individuals experienced poor outcomes and were significantly dependent. Specifically, 84 adults with autism who were included in this study were unemployed and required supported living arrangements, which primarily constituted institutionalization. Of the 12 adults with autism who were considered to have good outcomes, 11 were employed, 1 individual was attending college, 7 lived in their own homes, and 1 individual was married. Five of these individuals were reported as residing with their parents.

Rumsey, Rapoport, and Sceery (1985) conducted a follow-up study of 14 individuals with autism, five of whom also had mental retardation. The average age of subjects in this study was 28 years. Approximately 64% of subjects in this study attended school prior to the enactment of the Education for All Handicapped Children Act (EHA) (P. L. 94-142) of 1975 and 36% were in school for a few years after the enactment of EHA. However, 50% were identified as having received at least some special education services. Overall, Rumsey et al. (1985) reported that none of these subjects were totally independent and the outcomes obtained by 64% subjects were considered to be poor to very poor. In the area of employment, 28% were independently employed, 28% participated in special job training programs, 21% attended sheltered workshops, 14% were unemployed, and 7% attended day care programs. In the area of adult living, 7% were living independently, 14% lived in supervised apartments, 64% lived with their parents, 7% lived in group homes, and 7% lived in state institutions. In addition, at follow-up 64% of the adults with autism demonstrated significant deficits in social skills, earning standard scores below 70 on the Vineland Adaptive Behavior Scales (VABS; Sparrow, Balla, & Cicchetti, 1984). However, the

remaining 36% of subjects continued to have some impairments in social skills. The standard scores earned by these individuals on the VABS ranged from 72 to 88, with the majority falling at or below 80.

Gillberg and Steffenburg (1987) conducted a follow-up study of 23 individuals who had been diagnosed with infantile autism. Overall, only 1 individual in this study were found to have obtained good or very good outcomes in adulthood, reaching normal or near normal levels of functioning across vocational, domestic, and social domains. Eleven percent were found to have made significant progress, but continued to present persistent social and behavioral difficulties. The remaining 59% of subjects in this study were considered to have obtained poor or very poor outcomes and to be significantly dependent.

Ruble and Dalrymple (1996) conducted an outcome study of 46 individuals with autism who had been referred to an Indiana developmental disabilities center as children. Thirty-nine of the subjects had IQ scores that fell in the mentally retarded range and the mean age at follow-up was 17 years. Ruble et al (1996) reported on outcomes for 18 adult subjects in the areas of employment, adult living, adaptive behavior skills, and challenging behaviors. Overall, 100% of the adults in this study had poor or very poor outcomes. In the area of employment, 22% were independently employed, 5% participated in supported employment, 39% participated in sheltered workshops, 17% were in day care programs, and 11% were in institutional programs. In the area of adult living, none of the adults lived independently, 78% lived with their parents, 11% lived in group homes, and 11% were institutionalized. The adaptive behavior levels obtained by the adults in this study was low, with 96% of subjects obtaining VABS standard scores below 70 in the areas of communication and daily living skills. In addition, 100% of subjects had significant social impairments with VABS standard scores below 70. In the area of challenging behaviors, results were provided for the entire sample of 46 adolescents and adults with autism. While the percentage of subjects who engaged in specific types of challenging behaviors was reported to have decreased somewhat, many individuals continued to display such behaviors. Specifically, 77% of subjects engaged in self-stimulatory behavior, 63% engaged in compulsive behaviors, 57% engaged in self-injurious behaviors, 53% engaged in physically aggressive behaviors, 16% engaged in PICA, and 13% engaged in elopement behaviors.

Lotter (1978) reviewed eight empirical studies on outcomes for individuals with autism conducted prior to 1975. The studies reviewed included 474 individuals who had been diagnosed with autism or either childhood psychosis or childhood schizophrenia, which were considered to be consistent with the diagnosis of autism. Lotter (1978) reported that good outcomes were reported for only 5%-17% of subjects included in the studies reviewed. However, the number of individuals with autism across these early studies who had extremely good outcomes or who were considered "normal" was very small and only constituted a small percentage of subjects in most studies (Lotter, 1978). In contrast, Lotter (1978) asserted that 66% of subjects with autism in these studies were severely handicapped or were completely unable to function independently in any life domain. In addition, only 8% of adult subjects with autism in the reviewed studies were employed.

Gillberg (1991) summarized outcome studies that had been conducted with individuals with autism prior to 1990. In this review, summaries were provided regarding the percentage of individuals with autism who obtained various outcomes during adulthood. For example, approximately 60% of individuals with autism were found to have very poor outcomes, indicating total dependence on family or adult service providers across all domains of life. Approximately 30% were considered to have obtained greater levels of independence than predicted, based on information regarding needs and characteristics these individuals presented during childhood. However, these individuals still were considered to have obtained poor outcomes, as they continued to be significantly dependency on others during adulthood. Gillberg (1991) also found, that less that 10% of individuals with autism have good or very good outcomes, living on their own without support, independently maintaining employment. In addition, some individuals with autism cultivate intimate relationships during adulthood, as evidenced by marrying and having children. Overall, Gillberg (1991) concluded that there was significant variability in adult outcomes obtained by individuals with autism, primarily due to diagnostic criteria utilized in the particular study.

Outcome Studies Targeting Individuals with Asperger's Syndrome

A variety of studies have been published over the last thirty years that target individuals with Asperger's syndrome or high functioning autism. These individuals were studied, in part, to examine the effects of autism characteristics, without the confounding

deficits associated with mental retardation, on outcomes. Results of these studies suggest that 56% to 86% of individuals with Asperger's syndrome or high functioning autism experience poor to very poor outcomes in adulthood. This section describes five outcome studies conducted over the past thirty years that target individuals with Asperger's syndrome or high functioning autism. In addition, one study is reviewed which made direct comparisons between individuals with autism and individuals with Asperger's syndrome or high functioning autism.

Outcome studies. Tantam (1991) reported similarly poor outcomes in a follow-up study of adults with autism that had been conducted during the 1970s. This study included 46 high functioning individuals with autism. The mean age of subjects at the time of follow-up was 24 years. Although no qualitative ratings of outcome were conducted, the majority of individuals in this study had not developed the skills necessary for independent employment, adult living, or intimate adult relationships. In terms of employment, only 4 subjects (9%) independently held a job and 2 individuals (4%) were attending college. All subjects in this study were reported as requiring at least some degree of supervision, with 47% living with their parents and 53% receiving residential care. In the area of intimate adult relationships, only 1 individual was married (2%) and only 2 others (4%) had had any type of dating experiences. In addition, Tantam (1991) reported that 90% of the adults with autism in this study continued to have significant impairments in social and communication skills.

During the mid-1970's, Newson, Dawson, and Everard (1984) examined the outcomes of 93 individuals with Asperger's syndrome or high-functioning autism. The mean age of subjects in this study was 23 years. Again, although no qualitative ratings of outcome were conducted in this study, the majority of subjects were not functioning independently in the areas of employment, adult living, or intimate adult relationships. However, a greater percentage of the individuals in this study appeared to have attained greater independent functioning than in other studies conducted during this time. In the area of employment, 33% of subjects were either attending college or independently held a job. While 70% of participants were living with their parents, only 16% were institutionalized. In addition, 7% of the adults in this study lived independently and 15% were reported to be either married or to have had some dating experience.

Szatmari, Bartolucci, Bremner, Bond, and Rich (1989) conducted a follow-up study of 16 individuals with high functioning autism during the mid-1980s. The average age at follow-up was 26 years and the average IQ of subjects was reported as 92.4. Szatmari et al. (1989) examined outcomes in the areas of adaptive behavior skills, post-secondary education, employment, adult living, and social relationships. Overall, 56% of subjects were reported as having poor or very poor outcomes, 81% had deficits in social and/or communication skills and 19% had significant deficits in daily living skills. In the area of post-secondary education, 50% of subjects (n = 8) had attended college, with 5 ultimately receiving bachelor degrees and 1 receiving a masters degree. In the area of employment, 56% of subjects were either independently employed or attending college, 25% participated in sheltered workshops, and 19% were unemployed. In the area of adult living, 31% of subjects lived independently, 62% lived with their parents, and 6% lived in group homes. In terms of social relationships, 6% of subjects were married, 31% dated occasionally, and 62% rarely or never dated.

Lord and Venter (1992) conducted a follow-up study examining the outcomes of 22 high functioning individuals with autism. Eighty six percent of the individuals in this study were reported as having significant deficits in adaptive behavior skills, obtaining VABS standard scores below 70. In the area of employment, 27% individuals were independently employed, 14% were unemployed, and 59% participated in sheltered employment. While 27% were independently employed, these individuals held low-level service jobs and all had received formal assistance in finding employment. In the area of adult living, 18% lived independently and 27% lived in supported apartments. The remaining 54% of subjects were reported as requiring high levels of residential support. None of the individuals in this study were married or had significant long-term romantic relationships. Although no qualitative ratings of outcome were conducted, the authors asserted, when examining the results of recent outcome studies, that "Overall, we are left with a much more optimistic picture of the...independent functioning possible for high-functioning autistic...adults than was available 20 years ago" (p. 192).

Howlin (2000) reported the results of a London-based outcome study targeting 19 individuals with high functioning autism. Forty-seven percent of the subjects had received an education in self-contained programs for individuals with autism and 16% had attended

mainstream schools. The remaining 37% had not participated in formalized schooling. Overall, only 16% of the adults with high functioning autism were found to have obtained good or very good outcomes. In the area of employment, 5% of the adults with high functioning autism were independently employed, 10% were in college, 16% participated in sheltered workshops, and 68% were not employed. However, of the 19 subjects, 31% had attended at least some college. In the area of adult living, 10% lived independently, 42% lived with their parents, and 47% lived in residential facilities. None of the individuals who participated in this study were found to have developed significant, long-term relationships. Howlin (2000) also reported that 68% of the individuals with high functioning autism engage in moderate to severe stereotypic or ritualistic behaviors.

Comparison study. Larsen and Mouridsen (1997) reported the results of an outcome study conducted in the early 1980s. This study involved follow-up of 18 adults, including 9 who were diagnosed with autism and 9 who were diagnosed with Asperger's syndrome. The average age of these subjects was 38 years. Overall, Larsen et al (1997) reported that 28% of subjects in this study obtained good or very good outcomes. In addition, the authors found that outcomes varied only somewhat based on diagnostic group, with more significant variability in the outcomes obtained by individuals with autism. Specifically, 67% of individuals with Asperger's syndrome, as compared to 78% of individuals with autism, were found to have obtained poor or very poor outcomes. However, qualitative ratings of outcome ranged from poor to very good in the group of individuals with Asperger's syndrome and from very poor to good in autism group. In the area of employment, 12% of individuals with Asperger's were independently employed, 25% participated in sheltered workshops, and 62% were unemployed or received a disability pension. In comparison, 25% of individuals with autism were independently employed, 12% participated in sheltered workshops, and 62% attended some kind of day treatment programs at a psychiatric hospital. In the area of adult living, 33% of individuals with Asperger's lived independently, 44% had supported living arrangements with parents or relatives, 11% resided in community residential settings, and 11% were institutionalized. In comparison, 33% of individuals with autism lived independently, 11% lived with their parents, and 55% were institutionalized. Larsen et al. (1997) also reported the amount of residential supervision required by subjects. No adult

living supervision was required by 55% of the adults in this study (3 subjects with Asperger's subjects and 2 subjects with autism). Minimal supervision was required by 4 subjects with Asperger's (44%). Moderate supervision was required by 17% of subjects (2 subjects with Asperger's subjects and 1 subject with of autism). Constant supervision was required by 6 of the adults with autism (66%).

Summary

Despite the methodological weaknesses of the studies on adult outcomes of individuals with autism that have been conducted over the last thirty years, the results of these studies are significantly similar. These studies have consistently demonstrated that the adult outcomes of individuals with autism are typically poor, with the majority of individuals in this population reaching minimal, if any, independence across the major life domains of employment, adult living, and social relationships. In addition, while the outcomes of individuals with Asperger's syndrome or high functioning autism appear to be somewhat less variable than individuals with autism, the absence of mental retardation appears to have less of an effect on outcome than would be expected. In fact, high functioning individuals with autism who obtain normal or near normal levels of functioning in adulthood are clearly in the minority.

Factors Related to Adult Outcomes

Due to the typically poor outcomes obtained by individuals with autism, researchers have become increasingly interested in variables that reliably differentiate between individuals with autism who obtain good versus poor outcomes. The majority of early studies in this area have primarily focused on what could be considered immutable characteristics (Ruble & Dalrymple, 1996). In fact, for many years, the two variables considered to be the best predictors of outcome for individuals with autism included childhood nonverbal IQ and early communicative speech (DeMyer et al., 1973; Eisenberg, 1956; Freeman et al., 1985; Rumsey et al., 1985; Gillberg, 1991; Gillberg & Steffenburg, 1987; Stein et al., 2001). Specifically, children with autism who obtain standard scores below 70 on nonverbal IQ tests and who do not develop functional speech prior to the age of 5 are considered to have a poor prognosis for adult independence. More recently, in an attempt to identify how best to facilitate adult independence for individuals with autism and developmental disabilities,

educators and researchers have called for the identification of more alterable factors related to adult outcome (Howlin, 2000; Ruble & Dalrymple, 1996). As Ruble and Dalrymple (1996) asserted, "Information on variables that can be manipulated and are responsive to treatment are more likely to be useful to parents and practitioners" (p. 4). This section will describe recent research on more modifiable variables that have been found to be correlated with the quality of outcomes obtained by individuals developmental disabilities, including adaptive behavior skills and challenging behaviors.

Adaptive Behavior Skills

Adaptive behavior refers to skills that allow an individual to function independently and responsibly in both personal and social situations (e.g., Gresham & Elliott, 1987). This term encompasses not only daily living or self-help skills, but also social and communication skills, vocational skills, and functional academic skills. While a variety of studies have documented that adults with autism typically present deficits in a variety of adaptive behavior domains (Lord & Venter, 1992; Ruble & Dalrymple, 1996; Rumsey et al., 1985; Tantam, 1991), limited research has been conducted regarding how these deficits correlate with outcomes for individuals in this population. Despite this limitation in the autism literature, much can be learned from these related studies targeting the broader population of individuals with developmental disabilities and mental retardation.

The relationship between adaptive behavior skills and the outcomes obtained by individuals with developmental disabilities has been the focus of a number of recent empirical studies. These studies support the widely held belief that adaptive behavior deficits have a profound impact on the level of independence and quality of life obtained by individuals with developmental disabilities as they reach adulthood (Felce & Emmerson, 2001; Freeman et al., 1999; Wacker, Harper, Powell, & Healy, 1983). For example, McGrew, Bruininks, and Thurlow (1992) examined the correlation between adaptive behavior skills and community adjustment for 239 adults with varying degrees of mental retardation. In this study, the researchers presented a more sensitive, multidimensional, and empirically validated measure of outcome than had been used in previous studies, termed community adjustment. This broad community adjustment variable was comprised of four factors including social network integration, recreation/leisure integration, community and economic integration, and

need for support services. Results of this study documented the significant relationship between adaptive behavior skills and outcome for individuals with mental retardation. Overall, the authors found significant correlations between adaptive behavior skills and all four community adjustment factors. Specifically, individuals with adaptive behavior deficits experienced restricted levels of community and economic independence, little integration in recreation/leisure activities, had few, if any, social contacts, and required significantly more community support services. As McGrew et al. (1992) asserted "These findings support a strong association between adaptive behavior [skills] and successful integration in the community, as defined by economic independence, independence in daytime activities and living arrangements, and independence from community support services" (p. 524).

Challenging Behaviors

In addition to adaptive behavior deficits, behavioral excesses have been shown to correlate significantly with the outcomes obtained by individuals with developmental disabilities (Felce & Emerson, 2001; Lucyshyn, Olson, & Horner, 1995; McGrew, et al., 1992; Walker & Calkins, 1986). Walker and Calkins (1986), in their review of the literature on community adjustment, reported that the display of appropriate behavior "seems to be an important determinant of whether a developmentally disabled person can remain within the community and access less restrictive settings therein" (p. 49). For example, Sutter, Mayeda, Call, Yanagi, & Yee (1980) examined the role played by challenging behavior in the community adjustment of adults with developmental disabilities. Results of this study indicated that challenging behaviors were significantly related to the degree to which individuals with developmental disabilities remained within community settings following deinstitutionalization. Specifically, subjects in this study who were reinstitutionalized were found to display significantly higher rates of challenging behaviors, such as verbal aggression, physical aggression, destruction of property, disrupting others, and running away, than individuals who remained in less restrictive, community settings.

In a more recent study, McGrew, et al. (1992) found significant negative relationships between challenging behaviors and a variety of factors related to community adjustment for adults with mental retardation. Specifically, higher levels of maladaptive behaviors were associated with poorer community and economic independence and integration, limited social

contacts, and a higher need for community support services. In addition, the display of challenging behaviors was found to be significantly related to increased rates of institutionalization for individuals in this study.

Summary

Traditionally, childhood IQ and early communicative speech have been viewed as the best predictors of adult outcomes for individuals with autism. However, research on the community adjustment of individuals with developmental disabilities has demonstrated that the presence of adaptive behavior skills and the absence of significant challenging behaviors also have a profound impact on the level of independent functioning obtained by adults within this population. Integrating this research with the current literature on autism is of great importance in that it represents a dramatic shift in focus from stable characteristics to factors that have the potential to be directly modified to facilitate better adult outcomes for individuals with autism.

The Promise of Educational and Behavioral Research in Facilitating Better Outcomes for Individuals with Autism

In 1976, Brown, Nietupski, and Hamre-Nietupski's idea of the "criterion of ultimate functioning" significantly challenged the traditional focus of special educational programs and affected the ways in which practitioners and educators viewed the education of students with disabilities, including individuals with autism. This idea held that educational programming for individuals with autism, as with students with other long-term disabilities, should not only focus on functioning in the educational environment, but also on the long-term functioning of the individual within the community. As Brown et al. (1979) asserted,

> It is crucial that the young students be taught both the skills required in subsequent school environments and the skills necessary to function as independently as possible in their home and neighborhood. [And] for severely handicapped adolescents and young adults, educational services should focus minimally on the requirements for future educational environments and maximally on preparation for functioning in a variety of least restrictive domestic, vocational, and community environments (p. 85).

These authors believed that focusing exclusively on skills that were highly valued and needed in education settings, such as academic skills, was not the best way to facilitate the short- and

long-term inclusion of individuals with disabilities in the community. Rather, the belief was that promoting the long-term functioning of individuals with disabilities required educators to target specific adaptive behaviors, such as daily living, self-help, functional academic, and social skills in the educational programs of individuals with autism and to teach these skills in natural settings to facilitate skill generalization and maintenance (Stokes & Baer, 1977). Ideally, this process would increase the probability that the student would be able to function within his/her community after leaving the school environment (Simpson & Sasso, 1992).

The importance of quality education and intervention to facilitate the long-term functioning of individuals with autism has become increasingly clear over the past 30 years due to findings from educational and behavioral research. This section summarizes the relevant educational and behavioral research regarding adaptive behavior interventions to address the needs of individuals with autism, effects of environmental factors on student behavior, and the communicative function of challenging behaviors.

Adaptive Behavior Needs and Interventions

For most students, the development of adaptive behavior skills occurs through basic instruction from parents, via modeling and naturally occurring social interactions (Mallon, 1998). However, for students with severe disabilities, such as mental retardation and autism, the acquisition of adaptive behavior skills is significantly more difficult. To acquire the adaptive behavior skills necessary for long-term independent functioning, these individuals typically require direct and intensive instruction throughout their school careers (Donnellan et al., 1985; Peterson & Martens, 1995). This section summarizes research regarding the adaptive behavior needs of individuals with autism, as well as the empirical literature regarding adaptive behavior interventions.

Research on Adaptive Behavior Needs

Several researchers have examined the long-term adaptive behavior deficits of individuals with autism. These studies illustrate the importance of assessing and targeting adaptive behavior skills in special education programming for students with autism.

Janicki, Lubin, and Friedman (1983) conducted an epidemiological study regarding the adaptive behavior and long-term functioning of 45,000 individuals with disabilities in New York, including 895 individuals with autism. Results demonstrated that, as a group, the

individuals with autism had significant deficits in daily living skills and basic independent functioning skills. For example, of the 895 individuals with autism in this study, 48% (51% of children under 12 years) did not have independent toileting skills, 47% (same percent of children under 12 years) did not have independent eating skills, and 79% (80% of children under 12 years) did not have independent dressing or grooming skills. The authors also reported that, "Almost all autistic adults were found to be incapable of carrying out basic independence capacity functions such as using telephones, cooking, doing their own laundry, and shopping" (Janicki et al., 1983, p. 78). Many other studies have also documented the significant adaptive behavior deficits of individuals with autism (e.g., Liss et al., 2001; Rodrigue, Morgan, & Geffken, 1991; Vig & Jedrysek, 1995).

The significance of adaptive behavior needs associated with autism is underscored by research comparing the needs of these individuals with those of individuals who have mental retardation. Results of these studies indicate that students with autism have adaptive behavior needs that are equally significant as those associated with mental retardation, and for some areas of adaptive behavior, the needs of students with autism are more significant. For example, Janicki, et al. (1983) compared the adaptive skills of subjects with autism to those of the individuals with mental retardation. In this comparison, subjects in each disability area were matched on age and IQ. Results revealed that individuals with mental retardation actually had higher levels of independence in their toileting and eating skills than individuals with autism. Comparisons of other adaptive skills showed no differences in level of functioning between individuals with autism and those with mental retardation. This study demonstrated that while individuals with autism differ significantly in terms of adaptive skill levels, as a group, they have gross deficits in their adaptive skills.

Jacobson and Ackerman (1990) conducted an epidemiological study in New York in which they examined the daily living skills of 1442 individuals with autism and 24,048 individuals with mental retardation. Results indicated that these two groups differed in adaptive skills by age. Comparisons of individuals with autism and those with mental retardation who were 5 to 12 years of age, demonstrated that the individuals with autism had significantly more advanced daily living skills than the individuals with mental retardation. No group differences were found in dressing skills and independent living skills. For subjects

ages 13 to 21 years and those ages 22 to 35, individuals with autism were shown to also have more advanced daily living skills overall. However, within this age range individuals with mental retardation had significantly superior independent living skills. In addition, no group differences were found in the areas of eating, toileting, and dressing skills. For both groups, significantly greater adaptive behavior deficits and lower levels of independent functioning skills were found with older individuals, presumably due to some improvement in programming for adaptive behavior skills from the early to the late 1980s.

Loveland and Kelley (1991) compared the adaptive behavior needs of children with autism and children with Down Syndrome. Results showed that, overall, both groups demonstrated adaptive behavior skills that were moderately impaired. The authors found no differences between children with autism and children with Down Syndrome in the area of daily living skills, but the children with autism had greater needs in the areas of leisure, social, play, and communication skills. In a similar study, Loveland and Kelley (1988) found no differences between adolescents with autism and adolescents with mental retardation in any area of adaptive behavior. Ando, Yoshimura, and Wakabayashi (1991) compared the adaptive behavior of 47 youth with autism and 128 youth with mental retardation. Subjects in this study ranged in age from 6 to 14 years. Results indicated that subjects with autism had more significant needs in the areas of self-care skills and academics than the subjects with mental retardation, although no other differences in their adaptive behavior needs were found.

Research on Adaptive Behavior Interventions

Studies documenting the effectiveness of various intervention strategies for addressing the needs of students with developmental disabilities, including autism, are relatively abundant in the professional literature. While the majority of these studies target the elimination of problem behaviors or the development of social and communication skills, many studies have also been conducted on strategies targeting other adaptive behavior skills in the areas of self-care, domestic, leisure, vocational, and functional academics. This section describes a summary of the literature on adaptive behavior interventions, including literature review studies and intervention studies.

Literature review studies. Currently, there are over 700 specific empirical studies documenting the utility of applied behavior analysis principles in addressing the adaptive behavior needs of individuals with autism (Matson, Benavidez, Compton, Paclawskj, & Baglio, 1996), which represents only a small percentage of adaptive behavior intervention studies for individuals with developmental disabilities in general. In addition, several literature review studies have been conducted that summarize many of these studies. Two of these studies are described below.

Westling and Murden (1978) conducted a review of 36 operant studies published between 1967 and 1975 that targeted self-help skills training for individuals with mental retardation. These skills were targeted, because, as Westling and Murden (1978) stated "Self-help, or daily living skills, are of primary importance in the initial stages of movement along the continuum from dependence to independence" (p. 253). Overall, the results of this study indicated that a wide variety of behavioral principles could be applied to successfully facilitate the development of self-help skills in individuals with developmental disabilities. Eating skills were the target of 16 empirical studies. The most frequent behavioral strategies employed to teach individuals with developmental disabilities various eating skills included time-out (87%) and graduated guidance (75%). Additional behavioral strategies employed in these studies included positive reinforcement (37%), prompting (37%), fading (25%), modeling (19%), physical restraint (19%), and forward or backward chaining (6%). Ten additional studies were reviewed that targeted personal care skills, such as dressing and personal hygiene. Positive reinforcement and chaining, the most frequently employed behavioral strategies, were included in 70% and 40% of the studies, respectively. Additional behavioral strategies evaluated in these studies included time-out (30%), prompting (30%), punishment (20%), modeling (10%), and physical restraint (10%). The remaining 10 studies reviewed in this article involved the use of behavioral strategies to address multiple self-care needs, including toileting, eating, domestic skills, personal hygiene, and dressing. The behavioral strategies evaluated in these studies included positive reinforcement (70%), graduated guidance (40%), structured environment (20%), time-out (10%), overcorrection (10%), forward and backward chaining (10%), and modeling (10%).

Matson et al. (1996) reviewed 228 behavioral studies published between 1980 and 1995 that evaluated the effectiveness of behavioral strategies in addressing various adaptive behavior needs of individuals with autism. Overall, the results of this study indicated that the individuals with autism could successfully be taught a wide variety of adaptive behavior skills via the use of behaviorally-based interventions. Social and communication skills were targeted in 124 empirical studies examined in this review. The behaviorally-based strategies validated in these studies included positive reinforcement, time-delay procedures, modeling, incidental teaching, discrete-trial training, direct instruction, peer coaching, self-monitoring, and total communication training. Independent functioning and prevocational/vocational skills were the focus of 35 studies reviewed in this article. The general skills found to be targeted in these studies included self-help skills, community skills, leisure skills, and vocational skills. A variety of behavioral strategies were validated in these studies, consistent with the findings of Westling and Murden (1978), including positive reinforcement, graduated guidance, forward and backward chaining, prompting, modeling, time-out, and fading. The remaining 53 studies reviewed targeted functional academic skills. The majority studies within this category demonstrated the effectiveness of task variation, positive reinforcement, and peer tutoring in teaching academic skills to individuals with autism. However, many studies also demonstrated the efficacy of behavioral strategies in remediating behavioral problems that interfered with learning, including off-task behaviors, inattention, stimulus overselectivity, and difficulties transitioning between tasks. The behavioral strategies validated in these studies included the use of visual cues, direct instruction, behavioral momentum, the Premack principle, and reinforcement.

The results of these reviews provided several implications for teaching self-help skills to individuals with autism, as well as other developmental disabilities, including the importance of structured programs, task analysis of behavior, extinguishing inappropriate behaviors, providing frequent learning opportunities to facilitate faster skill development, and systematically programming for maintenance and generalization of skills. In addition, these empirical studies demonstrate the utility of implementing behavioral strategies in the schools to address the adaptive behavior needs of individuals with developmental disabilities and, ultimately, to facilitate greater independence. However, as Westling and Murden (1978)

warned "Teachers must be tedious in their planning, consistent in their implementation, and precise in their record keeping in order for [adaptive] behaviors to be learned" (p. 280).

Intervention studies. As evidenced by the review conducted by Matson, et al. (1996), hundreds of studies have been conducted over the last 20 years validating the utility of behavioral strategies in facilitating the development of adaptive behavior skills in individuals with autism. Several adaptive behavior studies, which target a variety of skills, including self-help skills, social skills, and functional academic skills, are described in this section.

Matson, Taras, Sevin, Love, and Fridley (1990) examined the effectiveness of several behavioral strategies in teaching multiple self-help skills to three elementary students with autism and mental retardation. At least two self-help skills were targeted for each student, including tying shoes, brushing teeth, combing hair, drinking, and eating. Each self-help skill was task analyzed. The number of specific steps included for each self-help skill ranged from 8 to 21. The behavioral strategies used to teach these self-help skills included verbal instruction, modeling, physical guidance, verbal prompting, social and tangible reinforcement, prompt fading. A multiple-baseline design was used to evaluate the effectiveness of treatment for each subject. Data collection involved the number of task-analyzed steps of the target self-help skill that the individual completed independently. In 80 treatment sessions, one subject increased the number of shoe tying steps that she was able to complete independently from 0 to 6 (out of 12 steps) and the number of tooth brushing steps from 3 to 9 (out of 21 steps). In 35 treatment sessions, another student increased the number of number of shoe tying steps that he was able to complete independently from 3 to 12 (out of 12 steps) and the number of hair combing steps from 2 to 8 (out of 8 steps). In 28 treatment sessions, the third subject increased the number of drinking from a cup steps that she was able to complete independently from 4 to 12 (out of 12 steps) and the number of eating with a spoon steps from 4 to 16 (out of 16 steps). At follow-up, which occurred 7 months following the completion of treatment, all students in this study had either maintained treatment gains or improved.

Gunter, Fox, Brady, Shores, and Cavanaugh (1988) employed the behavioral strategies of graduated guidance (i.e., verbal cue, modeling and verbal cue, and physical guidance plus verbal cue) and social reinforcement to teach two elementary students with

autism to initiate social interactions with typical peers. These authors used a multiple-baseline across peers design to evaluate treatment effectiveness. Data were collected regarding the frequency of initiations with each of five peers during free time, as well as the percentage of time the student maintained interactions with peers. During baseline, neither subject initiated any social interactions with peers. Following 36 training sessions, the frequency with which one subject independently initiated social interactions with peers increased to 7 per free play session. In addition, the percentage of time that the subject was engaged with peers during free play increased from 0% to 75%. The second subject increased the frequency with which he independently initiated social interactions with peers to 12 per free play session and the percentage of time he interacted with peers to 67%. However, generalization strategies were not built into the treatment program and only one subject was found to generalize skills across novel settings and peers. This study demonstrated not only the utility of several behavioral strategies in increasing social interactions with typical peers, but also the importance of systematically programming for generalization of skills.

Alcantara (1994) conducted a study evaluating the utility of several behavioral strategies in facilitating the development and generalization of grocery purchasing skills in three elementary students with autism and mental retardation who ranged in age from 8 to 10 years. The intervention strategies used in this study included task analysis, photographic cues, videotape instruction, prompting, and reinforcement. During this intervention, photographs were used to teach the student items they were to buy at the grocery store. Students also were shown videotapes of the teacher modeling the 32 task analyzed steps involved in making purchases at three local grocery stores. Following this, students were taken to one grocery store and provided verbal and visual instruction in purchasing groceries, as well as social reinforcement. Verbal prompts were provided during initial visits to grocery stores and then faded over time. Data collection involved coding the number of task analyzed steps the student followed independently. A multiple-baseline across settings was used in this study. Following 24 training sessions, one subject increased the number of task analyzed steps he was able to complete independently from 8 to 29 (out of 32 steps) across three different grocery stores. A second subject increased the number of task analyzed steps she was able to complete independently from 6 to 31 (out of 32 steps) across three different grocery stores.

The third subject increased the number of task analyzed steps he was able to complete independently from 7 to 31 (out of 32 steps). All three subjects were observed to have maintained treatment gains or improved at follow-up. This study demonstrated not only the utility of several behavioral strategies in building complex grocery purchasing skills in children with autism, but also the importance of systematically programming for generalization of skills in natural settings.

A number of similar studies have also been conducted with students with autism in which behavioral intervention strategies were implemented to target adaptive behavior needs in the areas of community mobility skills (Blew, Schwartz, & Luce, 1985; Haring, Kennedy, Adams, & Pitts-Conway, 1987; Steinborn & Knapp, 1982), leisure skills (Coe, Matson, Fee, Manikam, & Linarello, 1990; Hawkins, 1982; Tryon & Keane, 1986), vocational skills (Smith & Coleman, 1986), and domestic skills (Smith & Belcher, 1985). The significance of these studies lies in their documentation of various strategies that, when individualized for a student with autism, can be effective in building a variety of adaptive behavior skills. Unfortunately, there is currently no empirical evidence regarding whether these strategies are being used by teachers to address the adaptive behavior needs of students with autism.

Implications of Research on Adaptive Behavior Needs and Interventions

Research regarding the adaptive behavior needs of individuals with autism, as well as adaptive behavior interventions has been important for several reasons. First, this research added support to criticisms regarding the traditional structure of special education. Specifically, this research provided information regarding problems associated with the exclusive focus on skills important only in the educational environment that may have little relevance to an individual's life in the community or at home. Second, this research has demonstrated the importance of targeting adaptive behavior skills in the educational programs of individuals with autism to facilitate their short- and long-term functioning within the community. Third, findings from this area of research indicate the importance of assessing future environments an individual with autism will encounter to determine the skills the student needs to develop to function within that environment. Finally, this research demonstrates that individuals with autism can learn the adaptive behavior skills required for more independent functioning when these skills are targeted and taught intensively.

Effect of Environmental Factors

Early behavioral research in the treatment of individuals with autism focused primarily on the modification of consequences to promote behavioral change. In fact, researchers demonstrated the effectiveness of using consequence-based behavioral interventions to facilitate skill development, such as conversational speech (Hewett, 1965; Lovaas, Berberich, Perloff, & Schaeffer, 1966; Risley & Wolf, 1967), imitation (Lovaas, Freitas, Nelson, & Whalen, 1967; Metz, 1965; Stark, Giddan, & Meisel, 1968), toileting skills (Marshall, 1966; McConnell, 1967; Wolf, Risley, Johnston, Harris, & Allen, 1967), and prosocial behavior (Lovaas, Schaeffer, & Simmons, 1965). Researchers also demonstrated the effectiveness of consequence-based intervention in eliminating problem behaviors, such as head-banging (Wolf, Risley, & Mees, 1964; Yeakel, Salisbury, Greer, & Marcus, 1970), tantruming (Wetzel, Baker, Roney, & Martin, 1966), aggression (Jensen & Womack, 1967), and stereotypic behavior (Koegel & Covert, 1972). However, researchers consistently found that these procedures typically failed to result in generalization and maintenance of behavior change after contingencies were removed (Harris & Ersner-Hershfield, 1978; Margolies, 1977). In addition, the time investments required by these procedures limited both the number of behaviors that could be targeted, as well as the ability of the teacher to work with other students (Kamps et al., 1991).

Research on the Effect of Environmental Factors

In response to the problems associated with the exclusive use of consequence-based procedures, researchers began examining more natural environmental factors that affected the functioning and behavior of individuals with autism. The purpose of such research was to identify general environmental factors that could be modified more efficiently to facilitate more independent functioning in students with autism and would facilitate the generalization and maintenance of behavior change. Several environmental factors found to affect the behavior and performance of individual with autism included amount of structure (Rutter & Bartak, 1973; Schopler, Brehm, Kinsbourne, & Reichler, 1971), teacher demands (Clark & Rutter, 1981; Edelson, Taubman, & Lovaas, 1983), task difficulty (Clark & Rutter, 1979; Weeks & Gaylord-Ross, 1981), task variation (Dunlap & Koegel, 1980; Winterling, Dunlap, & O'Neill, 1987), amount of teacher supervision (Dunlap & Johnson, 1985), visual cues

(Matson, Sevin, Box, Francis, and Sevin, 1993), and complexity of the environment (Duker & Rasing, 1989). In addition, researchers demonstrated that individualized interventions based on the unique responses of individuals with autism to various environmental factors were frequently successful in modifying a number of behaviors and required less teacher time to implement.

Pierce and Schreibman (1994) trained children with autism to use individualized picture schedules that delineated steps in self-help activities, such as getting dressed and setting the table. The determination of daily living needs to target for each child was based on interviews with parents. The skills selected for one child included making lunch, doing laundry, and setting the table. The skill selected for a second child included making the bed. Getting dressed, making lunch, and setting the table were the skills selected for a third child. In addition, task analysis of each skill was also individualized. For example, the third child had seven pictures in his picture schedule for setting the table, while the first child only had six pictures in his book due to his aversion to spoons. With minimal training these children were able to use the schedules to complete tasks independently. In addition, compared to baseline, the boys showed significant decreases in disruptive behavior. The authors also found that without any additional training the boys were able to generalize their skills across settings and at a 10 month follow-up had maintained those skills.

MacDuff, Krantz, and McClannahan (1993) found similar results in their study, which focused on individualizing picture schedules to teach four adolescents with autism to complete homework and engage in leisure activities. The authors individualized the picture schedules in terms of the type of behaviors that were targeted, as well as in terms of each child's specific preferences for reinforcers. Compared to baseline, these students showed a decrease in their dependence on the teacher and a decrease in disruptive behaviors. In addition, after only one week, all four students were able to complete the tasks independently by only looking at the first picture or one that had been randomly selected. MacDuff et al. (1993) stated that:

> When the study ended, all [four] of the boys were able to display complex homework and recreational repertoires for an hour, during which time they frequently changed tasks and moved to different areas of their group home without adults' prompts.

> Photographic activity schedules...became functional discriminative stimuli that prompted sustained-engagement after training ceased and fostered generalized responding to new activity sequences and novel leisure materials (p. 97).

Krantz, MacDuff, and McClannahan (1993) taught families to develop and use a photographic schedule for specific self-care, leisure, social, and housekeeping tasks with their child in the home. Results showed that the children increased the amount of time they engaged in activities and interactions with family members. In addition, there was a simultaneous decrease in the number of disruptive behaviors in which the children engaged.

Implications of Research on Environmental Factors

Research on the effects of environmental factors on individuals with autism was significant to the provision of quality educational services to these students for several reasons. First, this line of research demonstrated that general environmental factors can significantly affect a broad number of behaviors, as well as the independence of individuals with autism in the classroom. Second, researchers revealed the importance of assessing environmental factors in the design and implementation of appropriate and individualized special education services to students with autism. Third, this research showed that intervention strategies focused on environmental manipulation often required less teacher time in comparison to early consequence-based techniques and could more efficiently facilitate the inclusion of individuals with autism in less restrictive environments.

Intervening with Challenging Behaviors

One of the most significant factors which facilitated the inclusion of individuals with autism in less restrictive, community settings, such as the public schools, after the implementation of the Education for All Handicapped Children Act (EHA) (P. L. 94-142) in 1975 was the application of behavioral principles in the treatment of autism. Beginning in the early 1960s, researchers began using behavioral strategies to identify and remediate problem behaviors and to promote behavioral gains in individuals with autism (e.g., Ferster, 1961; Ferster & DeMyer, 1961; Wolf et al., 1964). The commonly held belief among behavioral researchers in the 1960s and 1970s was that the challenging behaviors of individuals with autism were nonfunctional and were best addressed through extinction and punishment procedures (Margolies, 1977). However, contrary to expectations, the application of

extinction and punishment procedures in the treatment of challenging behaviors sometimes resulted in increases in either the target behavior or in other equally problematic behaviors (e.g., Bucher & Lovaas, 1968 in Lichstein & Schreibman, 1976; Corte, Wolf, & Locke, 1971; Solnick, Rincover, & Peterson, 1977). Carr, Newsom, and Binkoff (1976) were the first authors to suggest that the aberrant behaviors displayed by individuals with autism, including self-injurious and self-stimulatory behaviors, were, in fact, functional (i.e., served a purpose for the individual). These authors demonstrated that time-out or contingent withdrawal of social attention did not always result in the elimination of self-destructive behaviors, as had been commonly believed. In fact, Carr et al. (1976) found that some children actually engaged in more self-injurious behavior when time-out procedures were used.

The Function of Challenging Behaviors

Subsequent research on the challenging behaviors of individuals with disabilities, including those with autism, demonstrated that the context in which the challenging behavior occurred included both antecedents and consequences that contributed to behavior maintenance. In addition, researchers demonstrated that challenging behaviors often served a function for student with disabilities. In fact, researchers identified six general functions of behavior that were believed to cause challenging behaviors. These functions include avoiding/escaping tasks or events (e.g., difficult tasks, changes in routine, interruption of desired activities), avoiding/escaping attention (e.g., smiles, hugs, frowns, scolds), avoiding/escaping stimulation (e.g., hunger, pain, skin irritation), obtaining attention (e.g., smiles, hugs, surprise), obtaining objects or activities (e.g., food, preferred toys), and obtaining internal stimulation (e.g., rhythmic rocking, visual stimulation with finger flicks, hand flapping) (Durand & Carr, 1985; Horner, Albin, & O'Neill, 1991; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982; Iwata, Pace, Dorsey, Zarcone, Vollmer, et al., 1994; Reichle & Johnston, 1993). This research established that challenging behaviors were typically used by individuals for one of two reasons: (a) s/he did not possess socially appropriate alternative behaviors in her/his behavioral repertoire that served the same functions; or (b) this behavior was more efficient and/or effective for the individual than other socially appropriate behaviors in expressing her/his needs (Durand, 1990).

Research on Intervening with Challenging Behaviors

A variety of studies conducted during the 1980s demonstrated the effectiveness of interventions based on functional assessment information in the treatment of the challenging behaviors of individuals with disabilities, including autism (e.g., Durand & Carr, 1985). These studies focused on modifying the antecedents and/or consequences maintaining the challenging behavior and teaching the student more socially appropriate alternative skills. For example, in one study conducted over an 11 year period, the self-injurious behaviors of over 96% of 152 individuals with developmental disabilities were eliminated by conducting functional analyses and developing interventions that taught the individuals alternative communicative behaviors (Iwata et al., 1994).

Touchette, MacDonald, and Langer (1985) used functional assessment procedures to determine the environmental factors maintaining the assaultive behavior of a 16 year-old girl with autism. Based on information that the girl's challenging behavior occurred most frequently during group instruction, but not during one-on-one instruction, the authors modified the group instruction. The environmental modification was successful in significantly decreasing the girl's challenging behavior.

Bird, Dores, Moniz, and Robinson (1989) employed functional analysis and functional communication training to address the challenging behaviors of individuals with autism and mental retardation. Functional communication training involves the teaching of an appropriate alternative behavior that serves the same function or results in the same reinforcer as the challenging behavior (Durand & Carr, 1992). In this study, functional analyses were conducted to determine the function or purpose of subjects' physically aggressive and/or self-injurious behaviors. For example, one subject was found to engage in self-injurious behaviors to escape task demands. The authors successfully addressed this subject's challenging behaviors by using information obtained during the functional analysis to design a functional communication training program, which involved teaching the subject to request a break during task demands and placing the self-injurious behaviors on extinction.

Implications of Research on Challenging Behaviors

Behavioral research that has been conducted over the past 30 years in the treatment of the challenging behaviors of individuals with autism and other severe disabilities has several

implications for the provision of educational services to students in this population. First, early research in this area illustrates the futility and potential dangers of implementing interventions or programs based on little relevant information regarding the individual and the environmental factors maintaining the behavior. Second, behavioral research in this area demonstrates the importance of individualizing interventions for individuals with autism based on the collection of functional information. And, as Rincover and Tripp (1979) stated, the empirical studies conducted during this time on the challenging behavior of individuals with autism and other disabilities "illustrate the importance of analyzing each individual case and of not simply assuming that all behaviors sharing a similar topography also share a similar set of controlling variables" (p. 399). Third, advances in the treatment of challenging behaviors have shown that interventions targeting the development of functional communication skills can eliminate the challenging behaviors which put these individuals at increased risk for severely restricted functioning in adulthood.

Summary

Educational and behavioral research conducted over the past four decades has provided promise for facilitating better outcomes for individuals with autism. While researchers have documented that individuals with autism have significant adaptive behavior deficits and challenging behaviors, significant progress has also been made in the identification and validation of intervention strategies that are effective in addressing the behavioral deficits and excesses that, when left untreated, significantly limit adult independence and functioning. However, limited research is available regarding whether these significant advances are being exploited in special education programs for individuals with autism. Without the application of these empirical findings in applied settings, the prognosis of individuals diagnosed with autism will continue to be poor.

Research on the Quality of Special Education Programs

As Kaye and Aserlind (1979) state, "In truth, much of the success (or failure) or P. L. 94-142 in achieving its main goal of providing quality education for all handicapped children lies in the effectiveness of IEPs - how [they are] perceived, conceived, and carried out" (p.138). Most experts in the area of autism contend that the development of quality IEPs based on comprehensive and instructionally-relevant assessment information is one of the

most important steps in the provision of appropriate educational services to students with autism in the least restrictive environment (Smith, Slattery, & Knopp, 1993). However, only limited information is currently available regarding the quality of educational programs for students with autism. This section examines the literature on the quality of educational programs for students with a variety of disabilities, including educational placement rates and quality indicators of special education programs. In addition, the quality of educational programming for students with autism is discussed in light of this literature.

Factors Related to Educational Placement

Long before the least restrictive mandate of the Education for all Handicapped Children Act (EHA) of 1976 (Public Law 94-142) was implemented, Reynolds (1962) stated that the traditional delivery of educational services, in which students with disabilities were segregated from their typical peers and from the mainstream of society in general, was inappropriate and ineffective. Reynolds (1962) recognized the variability among students with disabilities in terms of their educational needs and proposed that educational services be developed on a continuum from least to most restrictive. From this perspective, a number of different special education placement options should be available to accommodate students with varying degrees of need. During the 1960s, views regarding individuals with disabilities and the delivery of special education services began to change. For example, the practice of categorical placement of individuals with disabilities was becoming increasingly controversial (Dunn, 1968). Increasingly, the view regarding placement decisions was that they should be based on the individual child's strengths and needs and that students should be integrated with their typical peers as much as possible (Deno, 1970; Reynolds, 1962). The following section presents research that has focused on factors that influence special education decision making, as well as the limited information regarding the educational placement patterns of students with autism.

Decision Making

Although few studies have addressed the issue of how placement decisions are made, available studies typically focus on regular education teachers' participation in program development and the types of assessment information believed to be most important in making decisions.

The participation of regular education teachers in the placement process has been the focus of several studies. In one study, observations were made of 24 placement team meetings to determine the amount of participation by regular education teachers in decision making (Ysseldyke, Algozzine, and Allen, 1982). Teacher participation data were collected using a 10-second interval recording method. Observations demonstrated that, on average, teachers spoke 27% of the intervals observed, and 47% of their comments were subjective or irrelevant information. In addition, teachers did not make recommendations regarding placement or interventions in 67% of the meetings. Scalon, Arick, and Phelps (1981) found similar results, as parents indicated via questionnaire that regular education teachers had limited involvement with IEP teams and decision making. The significance of this problem was recognized by advocates and educators and attempts were made by congress to facilitate greater participation of regular education teachers in the development and implementation of IEPs for special education students. Recognizing the importance of special education students' participation in the general education curriculum and environment, as well as the fact that regular educators are frequently responsible for the implementation of accommodations and modifications required by special education students in the general education environment, the Individuals with Disabilities Education Act (IDEA) of 1997 (Public Law 105-17) mandated greater participation of these teachers in the IEP process. However, no empirical information is currently available regarding the impact of this mandate on current practice.

Several studies have focused on the type of assessment information perceived most useful by team members in making placement decisions. In one study, team members were asked to rate the relative importance of sixteen different types of assessment information in making placement decisions (Knoff, 1983). The most important types of assessment information identified in this study included classroom observation, receptive-expressive language, interview with the child, emotional indicators, and social skills ratings. Other studies have demonstrated the influence of other assessment information in making placement decisions, including IQ information (Hannaford, Simon, & Ellis, 1975; Matuszek & Oakland, 1979); age, gender, observation information, achievement test scores, and student retention information (Hannaford et al., 1975); and classroom achievement, achievement test

scores, and anxiety (Matuszek & Oakland, 1979). These findings are disconcerting, because they indicate that functional and instructionally-relevant assessment information is either not being collected or is not being used to guide educational programming decisions. The lack of influence this type of assessment information had in educational programming during the late 1970s and early 1980s brings into serious question the appropriateness, as well as the effectiveness, of special education programs during this time. Unfortunately, no information is currently available regarding whether such special education decision making practices have continued.

Placement Patterns for Students with Autism

Relatively little information is currently available regarding the educational placement patterns for students with autism. While many experts argue that individuals with autism can and should be included in the general education setting, the limited information available indicates that the vast majority of students with autism are still primarily receiving special education services in very restrictive settings, such as self-contained classes (McGee, Paradis, & Feldman, 1993). This placement trend is difficult to interpret, because no information is currently available regarding how assessment information is used in the development of special education services for individuals with autism nor how assessment information affects the restrictiveness of their special education programs. It could be argued that this trend in restrictive special education placement for students with autism reflects the fact that individuals within this population typically have significant adaptive behavior deficits and engage in disruptive or challenging behaviors that require educational resources beyond those which can realistically be provided in the general education environment. However, it has been argued that because of the variability among students within this population, a wide variety of program options are needed to meet their unique needs, including regular education and resource programs, as well as more restrictive placements (McGee et al., 1993). Information regarding factors affecting the development of special education programs for students with autism would provide some information regarding whether the almost exclusive placement of individuals with autism in self-contained classes is appropriate.

Quality Indicators of Educational Programs

Two primary quality indicators that have been used to examine the educational programs of students with a variety of disabilities, including behavioral disorders, learning disabilities, mental disabilities, and developmental delays are procedural compliance (Michnowicz, McConnell, Peterson, & Odom, 1995; Pyecha, Cox, Dewitt, Drummond, Jaffe, Kalt, Lane, & Pelosi, 1980; Schneck & Levy, 1979) and internal consistency (Fiedler & Knight, 1986; Reiher, 1992; Slavens, 1997; Smith, 1990; Smith & Simpson, 1989; Tymitz, 1981). In addition, some preliminary data exists regarding daily instructional activities for individuals with autism and mental retardation.

Procedural Compliance

One approach used by researchers to examine the quality of educational programs being provided to individuals with disabilities was procedural compliance with the mandates of EHA (P. L. 94-142) and the Individuals with Disabilities Education Act (IDEA) of 1990 (Public Law 101-476). Based on the assumption that procedural compliance was an indicator of the quality of special education services, researchers were interested in the degree to which IEP teams were following the guidelines delineated in these laws when developing IEPs.

Schneck and Levy (1979) reviewed the IEPs of 300 students labeled educable mentally retarded, emotionally disturbed, and learning disabled. Of the 300 IEPs reviewed in this study, 64% had no present level of educational performance (PLEP) statements, 20% had no goals or objectives, 18% had no statement of the related educational services provided, 37% did not report the amount of time the student spent in special education classes, and 68% had no information regarding the amount of time the individual was to spend in the regular education class. In addition, the referring teacher was not involved in the development of the IEP for 85% of the cases.

Pyecha et al. (1980) reviewed 3207 IEPs from 42 states. Of these, 2657 were IEPs for students from public schools and 550 were IEPs for students from state and special facilities. Results showed that only one-third of the IEPs contained all information required by P. L. 94-142. In addition, while 96% of the students in the study were enrolled in public schools, only 1% received all special education services in the general education class. Of the students who

received all special education services in the general education setting, only half of the IEPs matched the unique needs of students with appropriate educational services.

Michnowicz et al. (1995) evaluated the IEPs of 163 preschool-aged children with developmental delays who participated in Early Childhood Special Education (ECSE) programs in Tennessee and Minnesota. Specifically, the authors focused only on social goals and objectives, because of the long-term importance of facilitating the development of social competence in preschoolers with disabilities. Results demonstrated that 91% of the IEP objectives reviewed in the study did not meet the three criteria for objectives mandated by EHA (P. L. 94-142), including a description of the setting, specification of behaviors that are measurable and observable, and definition of criteria for mastery.

Internal Consistency

Based on information that students with disabilities were being provided educational services, the focus of the research shifted to the quality of IEPs as an indicator of the quality of services. As Smith (1990) described, the internal consistency of the IEP, the congruence between identified needs and IEP goals, "represents the very essence of special education and specially designed interventions" (p. 97).

Tymitz (1981) evaluated the IEP goals written by 102 resource teachers, 57 special educators, and 56 general education teachers. In this study, teachers were presented with hypothetical assessment information and asked to write goals and objectives to address the child's special needs. Results showed that many of the goals written by these teachers did not address or target the areas of need identified in the assessment information.

Fiedler and Knight (1986) reviewed the IEPs of 44 students with behavior disorders. In this study, the authors used a Ratio of Diagnostic-Intervention Congruence (RDIC) rating to describe the quality of the IEPs. The RDIC was calculated by dividing the number of recommendations included in the staffing report that were stated as goals by the total number of recommendations. Results showed that RDICs ranged from .14 to .25, indicating that, on average, fewer than one-fourth of recommendations made based on assessment information were ultimately stated as goals. In addition, 64.3% of the goals were not based on any assessment information available in the IEP.

Smith and Simpson (1989) evaluated the IEPs of 214 students with behavior disorders. The subjects received educational services through either a resource program, a self-contained program, a cross-categorical program, or a residential/institutional program. In reviewing the IEPs, a performance deficit was defined as an annual goal without an identified need and an annual goal deficit was defined as an identified need in absence of an annual goal. Results showed that significant performance deficits existed, as the majority of IEP goals for these students were not based on assessment information provided in the IEP. Annual goal deficits were also identified, but were not as significant as the performance deficits, because a larger number of needs were, in fact, addressed by IEP goals. In comparing students across programs, it was found that the IEPs of students in self-contained programs had higher performance deficits and lower annual goal deficits than students in the other programs. In effect, the study showed that the IEP goals for students in self-contained programs were based on little assessment information, but that the assessment information that was available was typically addressed through IEP goals.

Smith (1990) reviewed the IEPs of 120 students with behavior disorders and learning disabilities. Half these students were receiving services through a resource program and half were receiving services through a self-contained program. The methodology used in this study is similar to that described above. Results showed that overall performance deficits and annual goal deficits ranged from 25% to 50%. The IEPs of the students with behavior disorders in self-contained programs were more congruent on average (75.3%) than the IEPs of students with learning disabilities in a similar program (50.5%). In addition, the IEPs of students with behavior disorders who were served in a self-contained program were more congruent on average (75.3%) than the IEPs of those served in a resource program (55.9%).

Reiher (1992) used a self-report procedure to evaluate IEP congruence. In this study, questionnaires were sent to the teachers of 632 students with behavior disorders and returned by 463 for a return rate of 73.3%. The questionnaire asked the teacher to list deficits that had been identified during the comprehensive assessment of the target student. Teachers were then asked to indicate on a checklist in which areas IEP goals or objectives had been written for the student. In this study, congruence was defined as an IEP goal based on an identified deficit or an identified deficit addressed through an IEP goal. On average, 51.2% of the

identified deficits had been addressed through IEP goals and 43.5% of IEP goals were based on identified deficits.

Slavens (1997) evaluated the documented educational programs of students with autism to examine the consistency between assessment information and Individualized Education Program (IEP) goals. Special education files of 54 students with autism in 1st through 12th grade were reviewed. Results showed that when a student with autism had an identified need, that need was typically addressed within his/her IEP. However, this finding varied significantly across general areas of need. For example, only 17% of the subjects with daily living needs had IEP goals addressing those needs. In addition, fewer than 50% of the students with autism in this study had IEP goals addressing their identified behavioral needs. Several additional areas of identified need were frequently not addressed in subjects' IEPs, including social skills (63%) and motor skills (67%). Student needs that were most frequently addressed were in the areas of communication/language (80%), academics (75%), and prevocational/vocational (74%). The degree to which the IEP goals of students in this study were based on functional and instructionally-relevant assessment information was also examined. Overall, 79% of IEP goals were found to be based on assessment information that adequately informed intervention. However, this also varied significantly across adaptive behavior domains. For example, only 29% of daily living goals and 56% of behavioral goals were found to be based on functional assessment information. In other words, the majority of IEP goals in these areas were written without adequate information to make quality intervention or programming decisions. Conversely, the majority of IEP goals in the areas of communication/language (94%), prevocational/vocational (79%), academics (77%), and social (72%) were based on instructionally-relevant assessment information. Overall, the degree to which the IEPs for students with autism in this study were individualized varied significantly across adaptive behavior domains. This variability was also found in the degree to which IEP goals were based on assessment information that informed intervention and programming decisions. Unfortunately, no information was available regarding why the identified needs of these students were not addressed in their educational programs or whether the IEP goals that were written actually guided daily instruction.

Daily Instructional Activities

Rotholz, Kamps, and Greenwood (1989) conducted a study piloting the Code for Instructional Structure and Student Academic Response: Special Education Version (CISSAR-SPED), a computerized ecobehavioral assessment tool, in classroom observations of 12 special education students (9 with autism and mental retardation, 3 with mental retardation). Subjects ranged in age from 6 to 18 years and were all served in self-contained classrooms. Each subject was observed for a total of 2 hours. Results indicated that, on average, teachers interacted with the students 28.2% (Range = 9% - 47%) of the time observed and teacher associates interacted with student 35.4% (Range = 0% - 95%) of the time observed. In addition, student, on average, were observed to be academically responding 55.3% (Range = 34% - 72%) of the time observed and to display challenging behaviors 21.8% (Range = 10% - 41%) of the time observed. One of the most concerning findings in this study was that, despite the fact that the subjects had significant disabilities, they were observed to spend the majority of their time engaged in academic activities and no time in daily living or self-help activities. Specifically, during the time observed, subjects spent an average of 43% of the time engaged in academic activities (i.e., math, handwriting, reading, spelling), 12% of the time engaged in communication/language activities, 10% of the time in prevocational activities, and 35% in other activities (e.g., motor skills, arts/crafts).

General Implications for Students with Disabilities

Since the passage of P. L. 94-142, the focus of much of the IEP process has been on compliance with the letter of the law. This research on the internal consistency of IEPs, merely an indicator of the quality of special education, demonstrates that the intent of the law, after nearly three decades of implementation, has yet to be fully realized. As Pugach (1979) stated, "Completion of the IEP can be seen as a meaningless exercise if its only ostensible purpose is to satisfy a legal requirement" (p. 12). In order to provide individuals with disabilities the educational services guaranteed them by the law and to facilitate greater independence in adulthood, continued efforts need to be focused on the development and use of quality IEPs, which can serve as a guide to providing appropriate and individualized educational services based on the unique needs of individual students.

Implications for the Education of Individuals with Autism

The importance of applying a long-term focus and utilizing comprehensive assessment information in the development of individualized and appropriate educational programs and interventions for students with autism is well recognized. Research on the quality of IEPs for individuals autism, as well as students with other disabilities, raises significant concerns regarding the quality of instruction and educational services being provided to students with autism. Because of the severity and pervasiveness of autism, as well as the extreme variability in the unique strengths and needs of individuals within this population, it is imperative that IEPs for this population be high quality. Specifically, each IEP developed for an individual with autism should be based on comprehensive and functional assessment data and address the individual's unique skill deficits that put him or her at risk for dependence and increased need for support services in adulthood. Of equal importance is the use of such IEPs and assessment information to guide daily instruction. If current practices in educating students with autism do not meet these standards, steps must be taken to improve services.

Concluding Comments on Promoting the Long-Term Independence and Adult Functioning of Individuals with Autism

Autism was first recognized over 50 years ago by Leo Kanner (1943). Since then, incredible research efforts have been directed at developing and validating treatment strategies for use with individuals in this population. Early attempts at using psychoanalysis with individuals with autism proved ineffective and were soon replaced by attempts to utilize specific behavioral strategies. During the 1960s, behavioral researchers demonstrated that these difficult and interesting children were typically able to make significant behavioral gains. However, poor generalization and maintenance of behavior change was the norm during this time. Subsequent research has demonstrated the importance of collecting comprehensive and functional assessment information that is useful in the design of individualized special education services to promote generalization and maintenance of adaptive behavior gains and, ultimately, the long-term functioning of individuals with autism in the community.

In 1997, congress reaffirmed its commitment to students with disabilities through the Individuals with Disabilities Education Act (Public Law 105-17). Under this law, students with autism are guaranteed a free appropriate public education, individualized to meet the unique needs of each student, and provided in the least restrictive environment appropriate. However, the application of this law in current special education practice with individuals with autism is questionable. For example, while students with autism have adaptive behavior needs that are equally, if not more, significant than those of individuals with mental retardation (Gillham et al., 2000; Liss et al., 2001; Loveland & Kelley, 1991), the limited information currently available suggests that these needs frequently go unaddressed in student IEPs (Slavens, 1997). In addition, current empirical evidence suggests that only a very small percentage of individuals with autism actually obtain good outcomes and function independently in adulthood. While researchers have demonstrated positive effects of a variety of intervention strategies in increasing the independence of students with autism, it is unclear whether the implementation of such strategies in applied settings is occurring. Unfortunately, as Langone and Burton (1987) warn, "Professionals may inadvertently limit what a handicapped person can ultimately accomplish by waiting for adulthood to train for independence" (p. 161). By not targeting adaptive behavior needs in the educational programs of students with autism, we, as educators, are guilty of a great injustice. This injustice has pervasive repercussions in that it affects not only the individual with autism who is unable to participate and function fully in his/her community, but also families and society that must provide long-term care and assume a significant responsibility for these individuals throughout their lives. Research efforts at determining whether students with autism are receiving appropriate and quality special education services as guaranteed under this law are imperative.

CHAPTER 3. PROMOTING THE ADAPTIVE BEHAVIOR SKILLS OF STUDENTS WITH AUTISM: GAUGING EDUCATIONAL PROGRAMMING AND SERVICES

A paper to be submitted to Exceptional Children

Stacy Slavens Volmer

Introduction

A widely held belief among professionals and advocates in the field of developmental disabilities is that the primary focus of special education is to facilitate adult independence (Brown et al., 1979; Donnellan, Mesaros, & Anderson, 1985; Hughes & Agran, 1993; Simpson & Sasso, 1992; Wehmeyer, 1991; Wheeler, Ford, Nietupski, Loomis, & Brown, 1980). For example, the Association for Retarded Citizens (ARC) holds the position that "The purpose of education is to prepare all children and adolescents for success in adulthood. Students with mental retardation need to have experiences with and instruction in skills which enable them to work, live, and enjoy life in their community" (Wehmeyer, 1991, p. 2). This belief has significant importance for individuals with autism due to recent research regarding adult outcomes. Specifically, by adulthood, the majority of individuals with autism have not developed the adaptive skills necessary to function independently in society and many continue to display significant challenging behaviors that interfere with their inclusion in community environments (Dempsey & Foreman, 2001; Gillberg, 1991; Howlin, 2000; Stein et al., 2001). Due to these difficulties, many adults with autism are significantly dependent on family or third-party resources for support in major life activities related to employment, adult living, leisure, and social relationships. Stein, et al (2001) reported that approximately 70% of individuals with autism have poor outcomes in adulthood and "remain dependent on others in almost all aspects of living" (p. 355).

This section presents empirical information regarding the adaptive behavior needs of students with autism, the challenging behaviors of individuals with autism, and current educational programming practices for students with autism.

Adaptive Behavior Needs

Adaptive behavior refers to skills that allow an individual to function independently and responsibly in both personal and social situations (e.g., Gresham & Elliott, 1987). Reschly (1990) has delineated four primary domains of adaptive behavior, including (1)

independent functioning, (2) functional academics, (3) vocational skills, and (4) social skills. Independent functioning refers to self-care skills (e.g., eating, grooming, toileting, dressing) and domestic skills (e.g., meal preparation, housekeeping, basic home maintenance), as well as the ability to independently navigate a variety of community settings (e.g., home, school, grocery store). Functional academic skills refer to basic literacy skills in reading, math, and written language, as well as skills needed to handle money. Vocational skills refer to knowledge regarding jobs and careers, as well as skills related to obtaining a job (e.g., completing job applications, interviewing skills) and skills required on the job. Social skills refer to skills at interacting appropriately with a variety of different people and communicating effectively. The importance of developing the adaptive behavior skills of students with autism through quality educational programming is underscored by empirical evidence that indicates that adaptive behavior deficits are significantly correlated with dependency and poor adult outcomes for these individuals (Felce & Emmerson, 2001; Freeman, Del'Homme, Guthrie, & Zhang, 1999; Howlin, 2000; Wacker, Harper, Powell, & Healy, 1983). The following section describes studies documenting the adaptive behavior needs of individuals with autism, as well as research on adaptive behavior interventions.

Adaptive Behavior Needs of Individuals with Autism

Several researchers have examined the long-term adaptive behavior deficits of individuals with autism. These studies illustrate the importance of assessing and targeting adaptive behavior skills in special education programming for students with autism. This section describes several research articles documenting the adaptive behavior needs of individuals with autism, as well as the severity of such needs.

Research on adaptive behavior needs. Janicki, Lubin, and Friedman (1983) conducted an epidemiological study regarding the adaptive behavior and long-term functioning of 45,000 individuals with disabilities in New York, including 895 individuals with autism. Results demonstrated that, as a group, the individuals with autism had significant deficits in daily living skills and basic independent functioning skills. For example, of the 895 individuals with autism in this study, 48% (51% of children under 12 years) did not have independent toileting skills, 47% (same percentage of children under 12 years) did not have independent eating skills, and 79% (80% of children under 12 years) did

not have independent dressing or grooming skills. The authors also reported that, "Almost all autistic adults were found to be incapable of carrying out basic independence capacity functions such as using telephones, cooking, doing their own laundry, and shopping" (Janicki et al., 1983, p. 78).

Research on the severity of adaptive behavior needs. The significance of adaptive behavior needs associated with autism is underscored by research comparing the needs of these individuals with those of individuals who have mental retardation. Results of these studies indicate that students with autism have adaptive behavior needs that are equally significant as those associated with mental retardation, and for some areas of adaptive behavior, the needs of students with autism are more significant. For example, Loveland and Kelley (1991) compared the adaptive behavior needs of children with autism and children with Down Syndrome. Results showed that, overall, both groups demonstrated adaptive behavior skills that were moderately impaired. The authors found no differences between children with autism and children with Down Syndrome in the area of daily living skills, but the children with autism had greater needs in the areas of leisure, social, play, and communication skills. In a similar study, Loveland and Kelley (1988) found no differences between adolescents with autism and adolescents with mental retardation in any area of adaptive behavior. Ando, Yoshimura, and Wakabayashi (1991) compared the adaptive behavior of 47 youth with autism and 128 youth with mental retardation. Subjects in this study ranged in age from 6 to 14 years. Results indicated that subjects with autism had more significant needs in the areas of self-care skills and academics than the subjects with mental retardation, although no other differences in their adaptive behavior needs were found. Many other studies have also documented the significant adaptive behavior deficits of individuals with autism (e.g., Liss et al., 2001; Rodrigue, Morgan, & Geffken, 1991; Vig & Jedrysek, 1995).

Adaptive Behavior Intervention Strategies

For most students, the development of adaptive behavior skills occurs through basic instruction from parents, via modeling and naturally occurring social interactions (Mallon, 1998; Sigafoos, 1999). However, for students with severe disabilities, such as mental retardation and autism, the acquisition of adaptive behavior skills is significantly more

difficult. To acquire the adaptive behavior skills necessary for long-term independent functioning, these individuals typically require direct and intensive instruction throughout their school careers (Donnellan et al., 1985; Peterson & Martens, 1995; Schopler & Mesibov, 1994; Sigafoos, 1999). Studies documenting the effectiveness of various intervention strategies for addressing the needs of students with autism are relatively abundant in the professional literature. This section provides summaries of a literature review study, as well as six intervention studies that validated the effectiveness of a variety of behavioral strategies in addressing the adaptive behavior needs of individuals with autism.

Review of adaptive behavior interventions literature. Matson, Benavidez, Compton, Paclawskj, and Baglio (1996) reviewed 228 behavioral studies published between 1980 and 1995 that evaluated the effectiveness of behavioral strategies in addressing various adaptive behavior needs of individuals with autism. Overall, the results of this study indicated that the individuals with autism could successfully be taught a wide variety of adaptive behavior skills via the use of behaviorally-based interventions. Social and communication skills were targeted in 124 empirical studies examined in this review. The behaviorally-based strategies validated in these studies included positive reinforcement, time-delay procedures, modeling, incidental teaching, discrete-trial training, direct instruction, peer coaching, self-monitoring, and total communication training. Independent functioning and prevocational/vocational skills were the focus of 35 studies reviewed in this article. The general skills found to be targeted in these studies included self-help skills, community skills, leisure skills, and vocational skills. A variety of behavioral strategies were validated in these studies, including positive reinforcement, graduated guidance, forward and backward chaining, prompting, modeling, time-out, and fading. The remaining 53 studies reviewed in this study targeted functional academic skills. The majority studies within this category demonstrated the effectiveness of task variation, positive reinforcement, and peer tutoring in teaching academic skills to individuals with autism. However, many studies also demonstrated the efficacy of behavioral strategies in remediating behavioral problems that interfered with learning, including off-task behaviors, inattention, stimulus overselectivity, and difficulties transitioning between tasks. The behavioral strategies validated in these studies included the

use of visual cues, direct instruction, behavioral momentum, the Premack principle, and reinforcement.

Intervention studies. As evidenced by the review conducted by Matson, et al. (1996), hundreds of studies have been conducted over the last 20 years validating the utility of behavioral strategies in facilitating the development of adaptive behavior skills in individuals with autism. Several adaptive behavior studies, which target a variety of skills, including self-help skills, social skills, and functional academic skills, are described in this section.

Matson, Taras, Sevin, Love, and Fridley (1990) examined the effectiveness of several behavioral strategies in teaching multiple self-help skills to three elementary students with autism and mental retardation. At least two self-help skills were targeted for each student, including tying shoes, brushing teeth, combing hair, drinking, and eating. Each self-help skill was task analyzed. The number of specific steps included for each self-help skill ranged from 8 to 21. The behavioral strategies used to teach these self-help skills included verbal instruction, modeling, physical guidance, verbal prompting, social and tangible reinforcement, prompt fading. A multiple-baseline design was used to evaluate the effectiveness of treatment for each subject. Data collection involved the number of task-analyzed steps of the target self-help skill that the individual completed independently. In 80 treatment sessions, one subject increased the number of shoe tying steps that she was able to complete independently from 0 to 6 (out of 12 steps) and the number of tooth brushing steps from 3 to 9 (out of 21 steps). In 35 treatment sessions, another student increased the number of number of shoe tying steps that he was able to complete independently from 3 to 12 (out of 12 steps) and the number of hair combing steps from 2 to 8 (out of 8 steps). In 28 treatment sessions, the third subject increased the number of drinking from a cup steps that she was able to complete independently from 4 to 12 (out of 12 steps) and the number of eating with a spoon steps from 4 to 16 (out of 16 steps). At follow-up, which occurred 7 months following the completion of treatment, all students in this study had either maintained treatment gains or improved.

Gunter, Fox, Brady, Shores, and Cavanaugh (1988) employed the behavioral strategies of graduated guidance (i.e., verbal cue, modeling and verbal cue, and physical guidance plus verbal cue) and social reinforcement to teach two elementary students with

autism to initiate social interactions with typical peers. These authors used a multiple-baseline across peers design to evaluate treatment effectiveness. Data were collected regarding the frequency of initiations with each of five peers during free time, as well as the percentage of time the student maintained interactions with peers. During baseline, neither subject initiated any social interactions with peers. Following 36 training sessions, the frequency with which one subject independently initiated social interactions with peers increased to 7 per free play session. In addition, the percentage of time that the subject was engaged with peers during free play increased from 0% to 75%. The second subject increased the frequency with which he independently initiated social interactions with peers to 12 per free play session and the percentage of time he interacted with peers to 67%. However, generalization strategies were not built into the treatment program and only one subject was found to generalize skills across novel settings and peers. This study demonstrated not only the utility of several behavioral strategies in increasing social interactions with typical peers, but also the importance of systematically programming for generalization of skills.

Alcantara (1994) conducted a study evaluating the utility of several behavioral strategies in facilitating the development and generalization of grocery purchasing skills in three elementary students with autism and mental retardation who ranged in age from 8 to 10 years. The intervention strategies used in this study included task analysis, photographic cues, videotape instruction, prompting, and reinforcement. During this intervention, photographs were used to teach the student items they were to buy at the grocery store. Students also were shown videotapes of the teacher modeling the 32 task analyzed steps involved in making purchases at three local grocery stores. Following this, students were taken to one grocery store and provided verbal and visual instruction in purchasing groceries, as well as social reinforcement. Verbal prompts and positive reinforcement were provided during initial visits to grocery stores and then faded over time. Data collection involved coding the number of task analyzed steps the student followed independently. A multiple-baseline across settings was used in this study. Following 24 training sessions, one subject increased the number of task analyzed steps he was able to complete independently from 8 to 29 (out of 32 steps) across three different grocery stores. A second subject increased the number of task analyzed steps she was able to complete independently from 6 to 31 (out of 32 steps) across three

different grocery stores. The third subject increased the number of task analyzed steps he was able to complete independently from 7 to 31 (out of 32 steps). All three subjects were observed to have maintained treatment gains or improved at follow-up. This study demonstrated not only the utility of several behavioral strategies in building complex grocery purchasing skills in children with autism, but also the importance of systematically programming for generalization of skills in natural settings.

Pierce and Schreibman (1994) trained children with autism to use individualized picture schedules that delineated steps in self-help activities, such as getting dressed and setting the table. With minimal training, these children were able to use the schedules to complete tasks independently. The authors also found that without any additional training the boys were able to generalize their skills across settings and at a 10 month follow-up had maintained those skills.

MacDuff, Krantz, and McClannahan (1993) found similar results in their study, which focused on individualizing picture schedules to teach four adolescents with autism to complete homework and engage in leisure activities. The authors individualized the picture schedules in terms of the type of behaviors that were targeted, as well as in terms of each child's specific preferences for reinforcers. Compared to baseline, these students showed a decrease in their dependence on the teacher and a decrease in disruptive behaviors. In addition, after only one week, all four students were able to complete the tasks independently by only looking at the first picture or one that had been randomly selected.

Krantz, MacDuff, and McClannahan (1993) taught families to develop and use a photographic schedule for specific self-care, leisure, social, and housekeeping tasks with their child in the home. Results showed that the children increased the amount of time they engaged in activities and interactions with family members. In addition, there was a simultaneous decrease in the number of disruptive behaviors in which the children engaged.

A number of similar studies have also been conducted with students with autism in which behavioral intervention strategies were implemented to target adaptive behavior needs in the areas of community mobility skills (Blew, Schwartz, & Luce, 1985; Haring, Kennedy, Adams, & Pitts-Conway, 1987; Steinborn & Knapp, 1982), leisure skills (Coe, Matson, Fee,

Manikam, & Linarello, 1990; Hawkins, 1982; Tryon & Keane, 1986), vocational skills (Smith & Coleman, 1986), and domestic skills (Smith & Belcher, 1985).

Implications of Adaptive Behavior Research

The significance of the adaptive behavior literature, in relation to individuals with autism, lies in its documentation of the severity and pervasiveness of adaptive behavior needs within this population, as well as in its validation of the effectiveness of behavioral strategies in addressing these needs. In addition, adaptive behavior intervention studies provide several implications for teaching adaptive behavior skills to individuals with autism, as well as other developmental disabilities, including the importance of structured programs, task analysis of behavior, extinguishing inappropriate behaviors, providing frequent learning opportunities to facilitate faster skill development, and systematically programming for maintenance and generalization of skills. Overall, these empirical studies provide direction to educators for addressing the adaptive behavior needs of individuals with developmental disabilities and, ultimately, facilitating greater independence. However, as Westling and Murden (1978) warned "Teachers must be tedious in their planning, consistent in their implementation, and precise in their record keeping in order for [adaptive] behaviors to be learned" (p. 280). Unfortunately, there is little empirical evidence suggesting that these strategies are being used by teachers to address the adaptive behavior needs of students with autism.

Challenging Behaviors

Recent estimates suggest that as many as 40% of individuals with autism engage in challenging behaviors (Boomer & Garrison-Harrell, 1995). In addition, 28% of individuals with autism engage in some form of self-injurious behavior (Iwata, Zarcone, Vollmer, & Smith, 1994). Examples of challenging behaviors exhibited by individuals with autism include tantruming, head banging, self-choking, pica, physical aggression, elopement or running away, vomiting and reingesting food, eye gouging, and stereotypic motor behavior (Dunlap, Koegel, & Egel, 1979; Ruble & Dalrymple, 1996). Unfortunately, empirical evidence suggests that the display of challenging behaviors is significantly correlated with poor adult outcomes for individuals with autism and other developmental disabilities (Felce & Emerson, 2001; Lucyshyn, Olson, & Horner, 1995; McGrew, Bruininks, & Thurlow, 1992). For example, Walker and Calkins (1986), in their review of the literature on

community adjustment, reported that the display of appropriate behavior "seems to be an important determinant of whether a developmentally disabled person can remain within the community and access less restrictive settings therein" (p. 49). This section describes recent behavioral advances related to understanding and intervening with challenging behaviors, including a background regarding the function of challenging behaviors and research on effective strategies for intervening with challenging behaviors.

The Function of Challenging Behaviors

Carr, Newsom, and Binkoff (1976) were the first authors to suggest that the aberrant behaviors displayed by individuals with autism, including self-injurious and self-stimulatory behaviors, were, in fact, functional (i.e., served a purpose for the individual). These authors demonstrated that time-out or contingent withdrawal of social attention did not always result in the elimination of self-destructive behaviors, as had been commonly believed. In fact, Carr et al. (1976) found that some children actually engaged in more self-injurious behavior when time-out procedures were used. Subsequent research on the challenging behaviors of individuals with disabilities, including those with autism, demonstrated that the context in which the challenging behavior occurred included both antecedents and consequences that contributed to behavior maintenance. In addition, researchers demonstrated that challenging behaviors often served a function for student with disabilities. In fact, researchers identified six general functions of behavior that were believed to cause challenging behaviors. These functions include avoiding/escaping tasks or events (e.g., difficult tasks, changes in routine, interruption of desired activities), avoiding/escaping attention (e.g., smiles, hugs, frowns, scolds), avoiding/escaping stimulation (e.g., hunger, pain, skin irritation), obtaining attention (e.g., smiles, hugs, surprise), obtaining objects or activities (e.g., food, preferred toys), and obtaining internal stimulation (e.g., rhythmic rocking, visual stimulation with finger flicks, hand flapping) (Durand & Carr, 1985; Horner, Albin, & O'Neill, 1991; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982; Iwata, Pace, Dorsey, Zarcone, Vollmer, et al., 1994; Reichle & Johnston, 1993). This research established that challenging behaviors were typically used by individuals for one of two reasons: (a) s/he did not possess socially appropriate alternative behaviors in her/his behavioral repertoire that served the same functions; or (b) this behavior

was more efficient and/or effective for the individual than other socially appropriate behaviors in expressing her/his needs (Durand, 1990).

Research on Intervening with Challenging Behaviors

A variety of studies conducted during the 1980s demonstrated the effectiveness of interventions based on functional assessment information in the treatment of the challenging behaviors of individuals with disabilities, including autism (e.g., Durand & Carr, 1985). These studies focused on modifying the antecedents and/or consequences maintaining the challenging behavior and teaching the student more socially appropriate alternative skills. For example, in one study conducted over an 11 year period, the self-injurious behaviors of over 96% of 152 individuals with developmental disabilities were eliminated by conducting functional analyses and developing interventions that taught the individuals alternative communicative behaviors (Iwata et al., 1994).

Touchette, MacDonald, and Langer (1985) used functional assessment procedures to determine the environmental factors maintaining the assaultive behavior of a 16 year-old girl with autism. Based on information that the girl's challenging behavior occurred most frequently during group instruction, but not during one-on-one instruction, the authors modified the group instruction. The environmental modification was successful in significantly decreasing the girl's challenging behavior.

Bird, Dores, Moniz, and Robinson (1989) employed functional analysis and functional communication training to address the challenging behaviors of individuals with autism and mental retardation. Functional communication training involves the teaching of an appropriate alternative behavior that serves the same function or results in the same reinforcer as the challenging behavior (Durand & Carr, 1992). In this study, functional analyses were conducted to determine the function or purpose of subjects' physically aggressive and/or self-injurious behaviors. For example, one subject was found to engage in self-injurious behaviors to escape task demands. The authors successfully addressed this subject's challenging behaviors by using information obtained during the functional analysis to design a functional communication training program, which involved teaching the subject to request a break during task demands and placing the self-injurious behaviors on extinction.

Implications of Research on Challenging Behaviors

Behavioral research that has been conducted over the past 30 years in the treatment of the challenging behaviors of individuals with autism and other severe disabilities has several implications for the provision of educational services to students in this population. First, early research in this area illustrates the futility and potential dangers of implementing interventions or programs based on little relevant information regarding the individual and the environmental factors maintaining the behavior. Second, behavioral research in this area demonstrates the importance of individualizing interventions for individuals with autism based on the collection of functional information. And, as Rincover and Tripp (1979) stated, the empirical studies conducted during this time on the challenging behavior of individuals with autism and other disabilities "illustrate the importance of analyzing each individual case and of not simply assuming that all behaviors sharing a similar topography also share a similar set of controlling variables" (p. 399). Third, advances in the treatment of challenging behaviors have shown that interventions targeting the development of functional communication skills can eliminate the challenging behaviors which put these individuals at increased risk for severely restricted functioning in adulthood.

Educational Programming for Students with Autism

Since the passage of P. L. 94-142, research on the quality of special education has primarily focused on Individualized Education Programs (IEPs) and compliance with the letter of the law. Research on the internal consistency of IEPs, or the degree to which they are based on student needs, merely an indicator of the quality of special education, demonstrates that the intent of the law, after nearly three decades of implementation, has yet to be fully realized (Fiedler & Knight, 1986; Reiher, 1992; Slavens, 1997; Smith, 1990; Smith & Simpson, 1989; Tymitz, 1981). As Pugach (1979) stated, "Completion of the IEP can be seen as a meaningless exercise if its only ostensible purpose is to satisfy a legal requirement" (p. 12). As discussed above, little information is currently available regarding current practices in educational programming for students with autism. However, current empirical evidence suggests that some of the most significant needs of students in this population, such as adaptive behavior deficits and challenging behaviors, frequently go unaddressed in their

educational programs. This section describes research examining the special education programs of individuals with autism, as well as daily instructional activities.

Educational Programs

Loveland and Kelley (1988) reported, in their study comparing the adaptive behavior needs of adolescents with autism and those with mental retardation, that fewer than 33% of the subjects with autism were provided community activities that were designed to facilitate their growth in adaptive behavior.

Slavens (1997) evaluated the documented educational programs of students with autism to examine the consistency between assessment information and Individualized Education Program (IEP) goals. Special education files of 54 students with autism in 1st through 12th grade were reviewed. Results showed that when a student with autism had an identified need, that need was typically addressed within his/her IEP. However, this finding varied significantly across general areas of need. For example, only 17% of the subjects with daily living needs had IEP goals addressing those needs. In addition, fewer than 50% of the students with autism in this study had IEP goals addressing their identified behavioral needs. Several additional areas of identified need were frequently not addressed in subjects' IEPs, including social skills (63%) and motor skills (67%). Student needs that were most frequently addressed were in the areas of communication/language (80%), academics (75%), and prevocational/vocational (74%). The degree to which the IEP goals of students in this study were based on functional and instructionally-relevant assessment information was also examined. Overall, 79% of IEP goals were found to be based on assessment information that adequately informed intervention. However, this also varied significantly across adaptive behavior domains. For example, only 29% of daily living goals and 56% of behavioral goals were found to be based on functional assessment information. In other words, the majority of IEP goals in these areas were written without adequate information to make quality intervention or programming decisions. Conversely, the majority of IEP goals in the areas of communication/language (94%), prevocational/vocational (79%), academics (77%), and social (72%) were based on instructionally-relevant assessment information. Overall, the degree to which the IEPs for students with autism in this study were individualized varied significantly across adaptive behavior domains. This variability was also found in the degree

to which IEP goals were based on assessment information that informed intervention and programming decisions. Unfortunately, no information was available regarding why the identified needs of these students were not addressed in their educational programs or whether the IEP goals that were written actually guided daily instruction.

Daily Instructional Activities

Rotholz, Kamps, and Greenwood (1989) conducted a study piloting the Code for Instructional Structure and Student Academic Response: Special Education Version (CISSAR-SPED), a computerized ecobehavioral assessment tool, in classroom observations of 12 special education students (9 with autism and mental retardation, 3 with mental retardation). Subjects ranged in age from 6 to 18 years and were all served in self-contained classrooms. Each subject was observed for a total of 2 hours. Results indicated that, on average, teachers interacted with the students 28.2% (Range = 9% - 47%) of the time observed and teacher associates interacted with student 35.4% (Range = 0% - 95%) of the time observed. In addition, student, on average, were observed to be academically responding 55.3% (Range = 34% - 72%) of the time observed and to display challenging behaviors 21.8% (Range = 10% - 41%) of the time observed. One of the most concerning findings in this study was that, despite the fact that the subjects had significant disabilities, they were observed to spend the majority of their time engaged in academic activities and no time in daily living or self-help activities. Specifically, during the time observed, subjects spent an average of 43% of the time engaged in academic activities (i.e., math, handwriting, reading, spelling), 12% of the time engaged in communication/language activities, 10% of the time in prevocational activities, and 35% in other activities (e.g., motor skills, arts/crafts).

Implications of Educational Programming Research

In order to provide individuals with autism the educational services guaranteed them by the law and to facilitate greater independence in adulthood, continued efforts need to be focused on the development and use of quality IEPs, which can serve as a guide to providing appropriate and individualized educational services based on the unique needs of individual students. The studies described in this section are significant in that they document that the needs of students with autism that put them at greatest risk for dependency and poor adult outcomes, including adaptive behavior deficits and challenging behaviors (Felce &

Emmerson, 2001; Freeman et al., 1999; Howlin, 2000; Wacker et al., 1983), are frequently not addressed in their educational programs or in daily instructional activities. The consequence of this lack of attention is quite significant for individuals with autism, their families, and society in general. For, as Simpson and Sasso (1992) asserted, "Young men and women with autism who leave school without job, self-care, and independent living skills spend their lives in segregated settings more often than individuals who have acquired functional skills" (p. 9).

Summary

Despite the fact that students with autism have adaptive behavior needs that are equally, if not more, significant than those of individuals with mental retardation (Gillham, Carter, Volkmar, Sparrow, 2000; Liss et al., 2001; Loveland & Kelley, 1991), the limited information available suggests that these needs are typically not addressed in educational programs for these students (Rotholz et al., 1989; Slavens, 1997). In addition, no information is currently available regarding factors that affect team decisions to program for these needs or whether IEPs that address the adaptive behavior needs of students with autism influence daily instruction. While researchers have demonstrated positive effects of a variety of intervention strategies in increasing the independence of students with autism, it is unclear whether the implementation of such strategies is occurring in applied settings. Unfortunately, as Langone and Burton (1987) warn, "Professionals may inadvertently limit what a handicapped person can ultimately accomplish by waiting for adulthood to train for independence" (p. 161). By not targeting adaptive behavior needs and challenging behaviors in the educational programs of students with autism, we, as educators, are guilty of a great injustice. This injustice has pervasive repercussions in that it affects not only the individual with autism who is unable to participate and function fully in his/her community, but also families and society that must provide long-term care and assume a significant responsibility for these individuals throughout their lives.

This research project was conducted to fill a significant void in the professional literature and to facilitate positive outcomes for students with autism by documenting and evaluating current practices in designing and implementing adaptive behavior programs and

instructional activities for students with autism. This project was conducted to address the following research questions:

1. What is the congruence between student need, IEP goals, teacher reported classroom interventions, and the actual amount of school time students with autism are engaged in adaptive behavior instructional activities?
   a. To what extent do students with autism who have adaptive behavior need(s) have an IEP goal(s) and/or a specific classroom intervention addressing that need?
   b. Do students with autism who have IEP goals and/or specific interventions addressing adaptive behavior needs spend a greater percentage of their school day engaged in adaptive behavior instructional activities than students with autism who do not have IEP goals and/or specific interventions addressing adaptive behavior needs?
2. What factors affect whether adaptive behavior is targeted in the educational programs of students with autism?
   a. What reasons do teachers report for team decisions regarding whether or not to address the adaptive behavior needs of students with autism?
   b. How are teacher and parent beliefs regarding the importance of adaptive behavior and related programming related to the amount of school time students with autism are engaged in adaptive behavior instructional activities?
   c. What factors do teachers report interfere with their ability to address the adaptive behavior needs of students with autism?

Method

This section delineates specific research activities that were implemented to address the two research questions. Specifically, this section is organized into six parts. First, sampling procedures are presented, including the criteria used for selection of subjects (students, parents, and teachers), subject recruitment procedures, and demographics of the study sample. Second, the overall design of the study is presented, as well as specific information regarding the process used to address each research question. Third, information is provided regarding each measure used for this study, including specific steps taken to develop and validate the measures that were designed specifically for this study. Fourth, data collection procedures are delineated, including the process with which research assistants

were trained, as well as timelines that were used for collection of specific data. Fifth, procedures are delineated regarding data coding, including procedures used to train research assistants, descriptions of the information collected, and the guidelines used for coding the data. Finally, statistical and qualitative analyses used to answer the research questions are presented.

Sampling Procedures

The following section describes selection criteria used to identify potential subjects, the procedures used for generating a list of potential subjects and selecting subjects from Heartland Area Education Agency (AEA) 11, and steps taken to obtain consent from subjects within Heartland AEA 11 to participate in this study. Specific subject recruitment activities in Arrowhead Area Education Agency (AEA) 5, Area Education Agency (AEA) 6, and the Des Moines Public School District are also described. In addition, demographic information regarding the student subjects, parent subjects, and teacher subjects who participated in this study is presented.

Selection Criteria

This section contains information regarding the selection criteria used to determine the eligibility for student subjects, parent subjects, and teacher subjects for participation in this study.

Student subjects. To be considered eligible for inclusion in this study, potential student subjects were required to meet the following five criteria: (1) have a medical diagnosis of autism and/or meet the State of Iowa Educational definition of autism, (2) attend school in a district served by Area Education Agency (AEA) 5, Area Education Agency (AEA) 6, Heartland Area Education Agency (AEA) 11, or the Des Moines Public Schools, (3) be in at least 1st grade during the school year in which data were collected (i.e., 1998/1999 or 1999/2000), (4) have an Individualized Education Program (IEP) for the school year in which data were collected (i.e., 1998/1999 or 1999/2000), and (5) have both his/her parent(s) and teacher agree to participate in the study.

Parent subjects. To be considered eligible for inclusion in this study, potential parent subjects were required to meet the following two criteria: (1) have a child who meets the first four criteria delineated above, and (2) have a teacher who is primarily responsible for their

child's IEP agree to participate. For the purpose of this study, the term "parent subject" represents both a single parent/legal guardian or a parental couple (i.e., two individuals who have legal custody of the child). This was done to ensure that there was only one set of parent data for each student. Therefore, when two parents/guardians of one student agreed to participate, they were asked to complete each measure used in this study collaboratively.

Teacher subjects. To be considered eligible for inclusion in this study, potential teacher subjects were required to meet the following three criteria: (1) have a student who meets the first four criteria delineated above, (2) hold primary responsibility for the student's IEP, and (3) have a student whose parent(s) agrees to participate.

Subject Selection and Recruitment

This section delineates information regarding the steps taken as part of this study to identify and recruit subjects in Heartland AEA 11, as well as to recruit subjects in Arrowhead AEA 5, AEA 6, and the Des Moines Public School District.

Subject selection: AEA 11. Following research approval from Iowa State University (see Appendix B) and Heartland AEA 11's Institutional Review Committee, potential student subjects were identified from a list of 155 students with autism receiving special education services in school districts served by Heartland AEA. Per Heartland AEA's requirement that no students participating in their Autism Research Project be included in this study, these students were removed from the list of potential subjects. Using the aforementioned selection criteria, the special education file of each of the remaining students was reviewed to determine his/her eligibility for this study. A total of 58 students with autism who met selection criteria for this study were identified. These students with autism were served in 48% (27/56) of the school districts served by Heartland AEA 11.

Procedures for obtaining informed consent: Heartland AEA 11. Several steps were taken to secure subject participation in this study. To secure school district consent to allow research activities associated with this study to occur in the district, the research committee or special education administrator representing each potential subject's school district was contacted. Each school district research contact that agreed to consider participation in this study was sent a written description of the study. In addition, the specific procedures required by each school district for approving research projects was completed. Written informed

consent was received from 59% (16/27) of the school districts contacted. Fifty-two percent (30/58) of the students who were identified as eligible for this study attended these school districts. Following a school district's written agreement to participate in this study, consent was then sought from the parent(s)of each student with autism in that district who was eligible for this study (see Appendix C for sample parent consent letter). Parents were given the opportunity to decide whether it was appropriate for their child to also provide his/her informed consent to participate in this study. Parents were also asked to identify the teacher who was primarily responsible for their child's IEP. Written informed consent was received from 50% (15/30) of the parents contacted to participate in this study. When consent was obtained from a parent, the teacher identified as holding primary responsible for that child's IEP was contacted (see Appendix D for sample teacher consent letter). Written informed consent was received from 73% (11/15) of the teachers contacted to participate in this study.

Additional subject recruitment. Due to the need for additional subjects, several steps were taken to recruit additional subjects outside of Heartland AEA 11. Representatives from the Institutional Review Committees from Arrowhead Area Education Agency (AEA) 5, Area Education Agency (AEA) 6, and the Des Moines Public School District were contacted. Each research contact that agreed to consider participation in this study was sent a written description of the study. In addition, the specific procedures required by each agency for approving research projects was completed. Written informed consent was obtained from all three agencies. However, the Des Moines Public School District later withdrew its consent to participate. Following written agreement to participate in this study, AEA 5 and AEA 6 each provided a list of schools within the AEA that served students with autism.

To secure school consent to allow research activities associated with this study to occur, the research committee or special education administrator representing each of these schools was contacted. To determine whether the student(s) with autism within each school met the first four selection criteria for this study, the selection criteria were discussed with the research contact (primarily the school principal). The contact was then asked how many students with autism within the school met the criteria. Each school research contact that agreed to consider participation in this study was sent a written description of the study, as well as any additional information required by the school for approval of research projects. In

addition, each research contact was sent a stamped, blank envelope containing a parent consent letter (see Appendix E for sample parent consent letter) for each student with autism in their school who met selection criteria for this study. Upon agreeing to participate in this study, each school research contact was asked to send the parent consent letters to potential subjects. Written informed consent was received from 80% (4/5) of the schools contacted in AEA 5 and 100% (3/3) of the schools contacted in AEA 6. A total of 10 parent consent letters were sent by participating AEA 5 schools. A total of 8 parent consent letters were sent by participating AEA 6 schools. Parents were given the opportunity to decide whether it was appropriate for their child to also provide his/her informed consent to participate in this study. Parents were also asked to identify the teacher who was primarily responsible for their child's IEP. Written informed consent was received from 50% (5/10) of the parents in AEA 5 and 67% (2/3) of the parents in AEA 6 who were contacted to participate in this study. When consent was obtained from a parent, the teacher identified as holding primary responsible for that child's IEP was contacted (see Appendix F for sample teacher consent letter). Written informed consent was received from 100% (5/5) of the teachers in AEA 5 and 100% (2/2) of the teachers in AEA 6 who were contacted to participate in this study.

Subject Demographics

This section provides demographic information regarding student subjects, parent subjects, and teacher subjects.

Study student sample. A total of 18 students with autism (12 males and 6 females) were included in this study. Student subjects ranged in age from 6 to 11 years ($\underline{M}$ = 9.38, $\underline{SD}$ = 1.40) and were served in a variety of educational programs, including regular education (11.1%), resource room (16.7%), special class with integration (22.2%), special class with little integration (16.7%), special class full-time (27.8%), and self-contained special school (5.6%) (see Appendix G for descriptions of instructional program models). Students spent an average of 85.9% ($\underline{SD}$ = 29.9, Range = 6.0% - 100.0%) of the school day receiving direct special education services (i.e., services provide in special education settings and/or one-on-one teacher associate in general education settings). In addition, the percentage of the school day in which student subjects were integrated with typical peers ranged from 0% to 100% ($\underline{M}$ = 44.4, $\underline{SD}$ = 36.5). Additional student demographic information is presented in Table 1.

Table 1. Demographics of student sample

	Number of Students	Percent of Students
Age (years)		
6	1	5.6
7	2	11.1
8	3	16.7
9	6	33.3
10	4	22.2
11	2	11.1
Grade		
1	4	22.2
2	4	22.2
3	4	22.2
4	4	22.2
5	1	5.6
6	1	5.6
Gender		
Female	6	33.3
Male	12	66.7
Type of Diagnosis		
Educational	8	44.4
Medical	10	55.6
Age at Diagnosis		
2 – 3	4	22.2
4 – 5	5	27.8
6 – 7	3	16.7
Unknown	6	33.3
Area Education Agency		
5	5	27.8
6	2	11.1
11	11	61.1
Type of Staffing		
Annual	10	55.6
Restaffing	1	5.6
Three Year Reevaluation	7	38.9
Special Education Weighting		
1.7	2	11.1
2.4	3	16.7
3.7	13	72.2

Table 1. (continued)

	Number of Students	Percent of Students
Primary Instructional Program		
Regular Education	2	11.1
Resource	3	16.7
Special Class with Integration	4	22.2
Special Class with Little Integration	3	16.7
Special Class Full-Time	5	27.8
Self-Contained Special School	1	5.6
Percent of Day Receiving Special Education Services		
1 – 10	1	5.6
11 - 20	1	5.6
21 – 30	0	0.0
31 – 40	0	0.0
41 – 50	0	0.0
51 – 60	0	0.0
61 – 70	1	5.6
71 – 80	1	5.6
81 – 90	0	0.0
91-100	14	77.8
Percent of Day Integrated with Typical Peers		
1 – 10	5	27.7
11 - 20	2	11.1
21 – 30	1	5.6
31 – 40	1	5.6
41 – 50	0	0.0
51 – 60	2	11.1
61 – 70	2	11.1
71 – 80	0	0.0
81 – 90	3	16.7
91-100	2	11.1
Teacher Associate		
No Associate	3	16.7
Associate for 1% – 49% of the Day	2	11.1
Associate for 50% - 99% of the Day	3	16.7
Full-Time Associate	10	55.6
Support Services		
Adaptive Physical Education	1	5.6
Counseling	0	0.0
Occupational Therapy	4	22.2
Physical Therapy	0	0.0
Speech	16	88.9

Study parent sample. A total of 18 parent subjects participated in this study. Of these parent subjects, 5 were single parents/guardians (1 male and 4 females) and 13 were parental couples (13 males and 13 females). Male parents ranged in age from 32 to 48 years (M = 40.82, SD = 4.83, Mdn = 40.00) and female parents ranged in age from 29 to 44 years (M = 38.45, SD = 4.13, Mdn = 39.00). Parent participants had an average of 2.94 children (SD = 1.06, Range = 1-5) and represented a wide range of socioeconomic status. Median family income of parent subjects was $55,000-$59,000 (range = < $5000 to $95,000+). Additional parent and family demographic information is presented in Table 2 and Table 3, respectively.

Table 2. Demographics of parent sample

	Mothers (N = 17)		Fathers (N = 14)	
	Number	Percent	Number	Percent
Age				
25 - 29	1	5.9	0	0.0
30 - 34	0	0.0	1	7.1
35 - 39	6	35.3	4	28.6
40 - 44	4	23.5	3	21.4
45 - 49	0	0.0	3	21.4
Unknown	6	35.3	3	21.4
Ethnicity				
Caucasian	16	94.1	13	92.9
Unknown	1	5.9	1	7.1
Educational Background				
Some High School	0	0.0	1	7.1
High School Graduate	1	5.9	2	14.3
GED	0	0.0	1	7.1
Vocational Training	1	5.9	0	0.0
Some College	5	29.4	3	21.4
Two-Year Degree	4	23.5	0	0.0
Four-Year Degree	2	11.8	3	21.4
Some Graduate School	2	11.8	0	0.0
Graduate Degree	0	0.0	0	0.0
Professional Degree	1	5.9	3	21.4
Unknown	1	5.9	1	7.1

Study teacher sample. A total of 18 teacher subjects (all Caucasian females) participated in this study. Teacher participants ranged in age from 24 to 53 years (M = 38.67, SD = 10.46, Mdn = 43.00) and had a wide range of teaching experience. Specifically, the number of years of teaching experience reported by teacher participants ranged from 1 to 31

Table 3. Family demographics

	Number of Parents	Percent of Parents
Martial Status		
Single	1	5.6
Married	13	72.2
Divorced	4	22.2
Number of Children in Family		
1	2	11.1
2	3	16.7
3	8	44.4
4	4	22.2
5	1	5.6
Family Annual Income		
Under 9,999	2	11.1
10,000 – 19,999	1	5.6
20,000 – 29,999	2	11.1
30,000 – 39,999	3	16.7
40,000 – 49,999	0	0.0
50,000 – 59,999	2	11.1
60,000 – 69,000	1	5.6
70,000 – 79,999	1	5.6
80,000 – 89,999	0	0.0
90,000+	5	27.7
Unknown	1	5.6

years (M = 11.17, SD = 9.18, Mdn = 10.50). The number of years that teacher participants had taught students with autism ranged from 1 to 9 years (M = 2.72, SD = 2.61, Mdn = 1.00). Thirteen (72.2%) of the teacher subjects reported having received either Heartland Autism Training and/or TEACCH (Treatment and Education of Autistic and related Communications Handicapped Children) training, while 5 (27.8%) reported having not received either type of training. Additional teacher demographic information is presented in Table 4.

Design

A correlational design was utilized for this study. This section provides specific information regarding the procedures used to answer each of the five research questions underlying this study. This section is divided into five sections. The first two sections are devoted to research question #1, "*What is the congruence between student needs, IEP goals, teacher reported classroom interventions, and the actual amount of school time students with autism are engaged in adaptive behavior instructional activities?*" The final three sections

Table 4. Demographics of teacher sample

	Number of Teachers	Percent of Teachers
Age		
20 - 24	2	11.1
25 - 29	3	16.7
30 - 34	2	11.1
35 - 39	1	5.6
40 - 44	3	16.7
45 - 49	4	22.2
50 - 54	3	16.7
Educational Background		
Four-Year Degree	5	27.8
Some Graduate School	10	55.6
Graduate Degree	3	16.7
Specialization(s)		
General Education	17	94.4
Special Education	12	66.7
Mental Disabilities	9	50.0
Behavioral Disabilities	7	38.9
Learning Disabilities	5	27.8
Other	2	11.1
Autism Training		
Heartland and/or TEACCH Training	13	72.2
None	5	27.8
Years Teaching		
1 - 5	7	38.9
6 - 10	2	11.1
11 - 15	5	27.8
16 – 20	0	0.0
21 – 25	2	11.1
26 – 30	1	5.6
31 – 35	1	5.6
Years Teaching Special Education		
1 – 5	11	61.1
6 – 10	1	5.6
11 – 15	5	27.8
16 – 20	0	0.0
21 – 25	0	0.0
26 – 30	1	5.6
Years Teaching Students w/ Autism		
1 – 3	13	72.2
4 – 6	3	16.7
7 – 9	2	11.1

are devoted to research question #2, *"What factors affect whether adaptive behavior is targeted in the educational programs of students with autism?"* Each section is devoted to one of the secondary research questions guiding this study. For each secondary research question, the information collected to address that question is presented, as well as the methods with which these data were used to answer the specific research question. Table 5 provides an overview of the design of this study, including research questions, strategies and instruments used to collect data, data collected to answer each research question, and summarized data.

Research Question #1a

Several pieces of information were collected to address the research question, *"To what extent do students with autism who have adaptive behavior need(s) have an IEP goal(s) and/or a specific classroom intervention addressing that need?"* First, information regarding the adaptive behavior needs of students in this study was collected from the Present Level of Educational Performance (PLEP) in each student's Individualized Educational Program (IEP), teacher interviews, and parent interviews using the Comprehensive Test of Adaptive Behavior (CTAB; Adams, 1986) and Scales of Independent Behavior-Revised (SIB-R; Bruininks, Woodcock, Weatherman, & Hill, 1996). Second, information regarding the documented adaptive behavior programs (IEP goals) of participating students with autism was collected via the Educational Record Review Protocol (ERRP; described below). Third, more specific information regarding adaptive behavior interventions that were being implemented at school for each student subject was collected via the Adaptive Behavior Program Interview (ABPI; described below). Fourth, student need, IEP goal, and intervention data were coded according to the general domain, general adaptive behavior domain, and specific adaptive behavior domain (see Appendix H for definitions) represented. Fifth, specific need congruence (described below) was calculated for each student subject's specific areas of adaptive behavior need to determine the percentage of students whose specific need was addressed by an IEP goal, an intervention, or both an IEP goal and an intervention. In addition, the percentage of students whose specific need was not addressed was also determined. Finally, general need congruence (described below) was calculated for each general area of adaptive behavior in which student subjects' had need(s). General need

Table 5. Overview of study design

Research Questions	Strategies/Measure(s) Used to Collect Data	Data Collected to Answer Research Question	Summarized Data
1a. To what extent do students with autism who have adaptive behavior need have an IEP goal(s) and/or a specific classroom intervention addressing that need?	Record Review (ERRP)	PLEP, IEP Goals and Objectives	Specific Need Congruence, General Need Congruence
	Parent Interview (CTAB, SIB-R)	Student Need	
	Teacher Interview (ABPI)	Student Need, Interventions	
1b. Do students with autism who have IEP goals and/or specific interventions addressing adaptive behavior needs spend a greater percentage of their school day engaged in adaptive behavior instructional activities than students with autism who do not have IEP goals and/or specific interventions addressing adaptive behavior needs?	Record Review (ERRP)	PLEP, IEP Goals and Objectives	Specific Need Congruence , General Need Congruence
	Parent Interview (CTAB, SIB-R)	Student Need	
	Teacher Interview (ABPI)	Student Need, Interventions	
	Classroom Observation (ABOS)	Instructional Organization, Primary Skill, Student Engagement, Primary Interactor, Adult/Peer Instruction-Related Behavior	Student Engagement in Instructional Activities
2a. What reasons do teachers report for team decisions regarding whether or not to address the adaptive behavior needs of students with autism?	Teacher Survey (ABPS)	Reason IEP Team Decided to Write IEP Goal	Categories of Reasons IEP Team Decided to Write IEP Goal
		Reason IEP Team Decided Not to Write IEP Goal	Categories of Reason IEP Team Decided Not to Write IEP Goal
2b. How are teacher and parent beliefs regarding the importance of adaptive behavior and related programming related to the amount of school time students with autism are engaged in adaptive behavior instructional activities?	Teacher Questionnaire (ABAS)	Teacher Scores Regarding Perceived Importance of General Areas of Adaptive Behavior	Degree of Teacher Beliefs (High, Medium, Low) Regarding the General Areas of Adaptive Behavior
	Parent Questionnaire (ABAS)	Parent Scores Regarding Perceived Importance of General Areas of Adaptive Behavior	Degree of Parent Beliefs (High, Medium, Low) Regarding the General Areas of Adaptive Behavior
	Classroom Observation (ABOS)	Instructional Organization, Primary Skill, Student Engagement, Primary Interactor, Adult/Peer Instruction-Related Behavior	Student Engagement in Instructional Activities

Table 5. (continued)

Research Questions	Strategies/Measure(s) Used to Collect Data	Data Collected to Answer Research Question	Summarized Data
2c. What factors do teachers report affect their ability to address the adaptive behavior needs of students with autism?	Teacher Interview (ABPI)	Factors that Interfere with Teacher's Ability to Address Student Needs	Categories of Teacher-Reported Interfering Factors
		Resources/Changes Required by Teacher to Meet All of Student's Needs	Categories of Teacher-Reported Solutions

congruence was used to determine the percentage of student subjects who had the majority of their needs within a general area of adaptive behavior addressed within their educational programs, as well as the percentage of students who did not have the majority of their needs addressed.

Research Question #1b

Several pieces of information were collected to address the research question, *"Do students with autism who have IEP goals and/or specific interventions addressing adaptive behavior needs spend a greater percentage of their school day engaged in adaptive behavior instructional activities than students with autism who do not have IEP goals and/or specific interventions addressing adaptive behavior needs?"* Specific and general need congruence data, used to address research question #1a, were also employed to address this research question. Specifically, these data were used to sort students into three groups, including "need addressed", "need not addressed", and "no need". This process was implemented for each specific area of adaptive behavior need, as well as each general area of adaptive behavior need. In addition, information regarding the amount of time student subjects were engaged in adaptive behavior instructional activities at school was collected via the Adaptive Behavior Observation System (ABOS; described below). The percentage of the school day that students in the "need addressed" group were engaged in specific adaptive behavior instructional activities at school was then compared to the students in the "need not addressed" group. This process was used for each specific area of adaptive behavior, as well as each general area of adaptive behavior.

Research Question #2a

Information was collected to address the research question, *"What reasons do teachers report for team decisions regarding whether or not to address the adaptive behavior needs of students with autism?"* via the Adaptive Behavior Program Status Survey (ABPS; described below). This survey asked each teacher subject to report whether an IEP goal was written for the student subject in each specific area of adaptive behavior. Whether or not an IEP goal was written, the teacher was asked to report the reason underlying the IEP team's decision. The percentage of teachers who reported a specific reason for writing or not writing an IEP goal in a specific area was calculated. This process was utilized for each specific area of adaptive behavior need.

Research Question #2b

Several pieces of information were collected to address the research question, *"How are teacher and parent beliefs regarding the importance of adaptive behavior and related programming related to the amount of school time students with autism are engaged in adaptive behavior instructional activities?"* Information regarding parent and teacher beliefs regarding the importance of adaptive behavior skills and related programming was collected via the Adaptive Behavior Attitudes Survey (ABAS; described below). Information from the ABAS was used to quantify parent and teacher beliefs in each of the four general areas of adaptive behavior (i.e., independent functioning, functional academics, prevocational/vocational, social/communication) (see Appendix H for definitions). Data collected to address research question #1b regarding the percentage of time student subjects were engaged in adaptive behavior instructional activities (ABOS) were also used. The relationship between parental beliefs regarding each of the four general areas of adaptive behavior and the percentage of school time student subjects were engaged in adaptive behavior instructional activities was calculated using correlational procedures. These procedures were also implemented to determine the relationship between teacher beliefs about each of the four general areas of adaptive behavior and the percentage of school time student subjects were engaged in adaptive behavior instructional activities.

Research Question #2c

Information was collected to address the research question, *"What factors do teachers report affect their ability to address the adaptive behavior needs of students with autism?"* via the Adaptive Behavior Program Interview (ABPI; described below). As part of this interview, teachers were asked to provide information regarding the ease or difficulty of implementing interventions to address students' needs in each specific areas of adaptive behavior. For specific areas of adaptive behavior in which the teacher indicated that it was difficult to develop and/or implement interventions, she was then asked to describe the factors related to this perceived difficulty. Each teacher was also asked to describe additional resources or changes she felt were required to address all her student's specific adaptive behavior needs. The teacher information from the ABPI was analyzed and categorized using qualitative analysis procedures. The percentage of teacher subjects whose response fell in a specific category was also determined.

Measures

Seven measures were used in this study; five of which were developed specifically for this study. The additional two measures were validated, norm-referenced tests of adaptive behavior. A description of each measure and its purpose(s) is provided in the following sections. The order in which each measure is presented is based on the order in which the measures were used during data collection procedures. Specifically, information is provided regarding the Educational Record Review Protocol (ERRP), Comprehensive Test of Adaptive Behavior (CTAB), Scales of Independent Behavior-Revised (SIB-R), Adaptive Behavior Program Status (ABPS), Adaptive Behavior Observation System (ABOS), Adaptive Behavior Program Interview (ABPS), and Adaptive Behavior Attitudes Survey (ABAS). The steps taken to validate four of the measures that were developed for this study are presented in the final section.

Educational Record Review Protocol (ERRP)

The Educational Record Review Protocol (ERRP) (see Appendix I) was developed in collaboration with Heartland's Autism Resource Team members in September, 1998. The purpose of the ERRP is to document information regarding participating students, as well as their educational programs, from special education records. The ERRP was used to gather

information from the special education files of students in this study, including demographic information (e.g., age, grade, gender), educational program information (e.g., type of special education program, weighting), and diagnostic information (e.g., type of diagnosis, age at diagnosis). The ERRP was also used to document all IEP goals and objectives of student subjects involved in this study.

Comprehensive Test of Adaptive Behavior (CTAB)

The Comprehensive Test of Adaptive Behavior (CTAB; Adams, 1986) is a norm-referenced measure of adaptive behavior that can be used with parents and/or teachers. The CTAB can be used as a checklist, an interview, and/or a direct test to collect information regarding approximately 500 specific adaptive behavior skills that are organized into 6 major domains and 24 subdomains of adaptive behavior. The CTAB is technically adequate, with evidence of adequate reliability and validity (Adams, 1986). The CTAB was used in this study as an interview with participating parents to gather information regarding their perspective on the adaptive behavior needs of student subjects.

Scales of Independent Behavior-Revised (SIB-R)

The Scales of Independent Behavior-Revised (SIB-R) is a norm-referenced measure of adaptive behavior and problem behaviors that can be used as a checklist or interview. The SIB-R is technically adequate, with evidence of adequate reliability and validity (Bruininks et al., 1996). The SIB-R was used in this study as an interview with participating parents to gather additional information regarding the behavioral needs of student subjects. The Problem Behaviors section of the SIB-R targets information regarding 8 types of maladaptive behaviors that are organized into three subdomains. The SIB-R also provides an overall rating of maladaptive behavior.

Adaptive Behavior Program Status (ABPS)

The Adaptive Behavior Program Status Survey (ABPS) (see Appendix J) is a paper-pencil self-report measure that was developed to elicit information from teachers regarding decision making that occurred during the process of developing the current IEP for each participating student. Specifically, the purpose of the ABPS is to gather information from teachers to identify the reasons underlying team decisions regarding whether or not to write IEP goals in specific adaptive behavior areas. The ABPS asks participating teacher to identify

each adaptive behavior area for which an IEP goal(s) was written for the student subject, as well as each adaptive behavior area for which an IEP goal(s) was not written. For each adaptive behavior area, teachers are asked to select, from several possible statements, the primary reason underlying the team's decision regarding whether or not to write that IEP goal.

ABPS development and refinement. A preliminary version of the ABPS was developed in July 1998. Two school psychologists, as well as Heartland's Autism Resource Team members were asked to review and critique the preliminary version for appropriateness and completeness of the options delineated to represent why a team may or may not decide to write an IEP goal. Feedback provided by these individuals was used to further develop and refine this instrument. The ABPS was piloted with two elementary special education teachers who serve students with autism in self-contained programs in October 1998. Each teacher was asked to fill out the ABPS for two different students in her class. Information gathered during the pilot indicated that the options delineated in the ABPS were sufficient for representing team decision making underlying whether or not to write IEP goals. The final version of the ABPS was completed November 1998.

ABPS reliability. Test-retest reliability of the ABPS was determined during the pilot of this instrument. The two special education teachers participating in the pilot were asked to complete the ABPS twice for each student. Administrations of the ABPS during the pilot study occurred two weeks apart. Test-retest reliability was calculated for the ABPS by comparing specific item responses (i.e., goal or no goal, specific reason for writing or not writing goal) at Time 1 to specific item responses at Time 2. The number of agreements and disagreements for each ABPS was calculated, divided by the total number of agreements plus disagreements, and multiplied by 100. The overall test-retest reliability of the ABPS during the pilot was 100%.

Adaptive Behavior Observation System (ABOS)

The Adaptive Behavior Observation System (ABOS) (see Appendix K) was designed to collect classroom observational data. The purpose of the ABOS is to document the amount of time that students are engaged in various adaptive behavior instructional activities at school. The ABOS is based on a 30-second continuous interval data recording system. Every

30 seconds, the observer records what occurred for the greatest portion of the interval in 5 different categories (i.e., instructional organization, primary skill area, student engagement, primary interactor, and adult/peer instruction-related behavior).

ABOS development and refinement. A preliminary version of the ABOS was developed in July 1998 in collaboration with Heartland's Autism Resource Team members. Development activities included conceptual design, delineation of target categories, identification of target codes, and development of coding definitions. During November 1998, the ABOS was piloted by the primary investigator and graduate research assistants. During the pilot, preschool and elementary students with autism were observed using the ABOS. Based on the pilot results and experiences of the primary investigator and research assistants using the ABOS, definitions of observation targets were refined. The final version of the ABOS was completed in December 1998.

ABOS reliability. Inter-rater reliability estimates of direct observations using the ABOS were calculated during the pilot and throughout the study. Inter-rater agreement was calculated by dividing the total number of agreements by the total number of agreements plus disagreements. Criteria for overall inter-rater agreement of observers was set at 80%, with reliability in each observation category being at least 75%. The average overall inter-rater agreement of observers on the ABOS was 93% (range = 80%-99%) during reliability checks conducted throughout the study and 95% (range = 89%-99%) during reliability checks conducted during the data collection phase of the study. Inter-rater agreement information calculated during reliability checks conducted throughout the study is presented for each specific observation category in Table 6.

Adaptive Behavior Program Interview (ABPI)

The Adaptive Behavior Program Interview (ABPI) (see Appendix L) was developed to elicit information from teacher subjects regarding the adaptive behavior needs of student subjects, as well as the interventions in place to address those needs. In addition, the ABPI was designed to gather teacher information regarding factors that make developing and/or implementing interventions to address adaptive behavior needs difficult. The ABPI is a structured interview, which is organized around 17 specific areas of adaptive behavior.

Table 6. ABOS inter-rater agreement

Adaptive Behavior Observation System (ABOS)	Number of Agreements	Number of Disagreements	Percent of Total Agreements
Instructional Organization	3365	175	95.0
Primary Skill Activity	3427	113	98.8
Student Engagement	3164	376	89.4
Primary Interactor	3434	106	97.0
Instructional Behavior	3086	454	87.2
ABOS Total	16,476	1224	93.1

For each of these areas, the ABPI directs the interviewer to ask the teacher whether the target student has a significant need(s) in that specific area of adaptive behavior and, if so, to describe the specific need(s) in detail. When a specific need for the student is identified, then information is elicited from the teacher regarding whether an intervention is in place to address that need and, if so, what the intervention entails. Information is also elicited regarding the intervention, including documentation, implementation schedule, and progress monitoring. For each of the 17 specific areas of adaptive behavior, each teacher is also asked to rate the ease/difficulty of developing and/or implementing interventions in that area on a 6 point Likert-type scale from (1) very easy to (6) very difficult. In the event that a teacher rates the ease/difficulty of developing and/or implementing an intervention as somewhat difficult, difficult, or very difficult, the ABPI directs the interviewer to elicit further information. Specifically, information is gathered regarding factors the teacher feels contribute to making it difficult to address student need(s) in that specific area. The ABPI also contains several additional questions that are used to elicit teacher information regarding: (1) the degree to which a student's IEP reflects his/her needs, (2) whether the student's IEP is used to guide daily instructional activities, (3) the teacher's beliefs regarding the purpose of IEPs and special education, and (4) what additional resources or changes are required to fully address all the target student's needs.

A preliminary version of the ABPI was developed in September 1998. Two school psychologists, as well as Heartland's Autism Resource Team members were asked to review

and critique the preliminary version for appropriateness and completeness of questions. Feedback provided by these individuals was used to further develop and refine this instrument. The ABPI was piloted with one elementary special education teacher who served students with autism in a self-contained program in October 1998. Information gathered during the pilot indicated that the interview took approximately 45 minutes to complete. In addition, the questions in the ABPI were found to be sufficient for eliciting an appropriate amount and quality of information regarding student needs, interventions, and factors that affect addressing the adaptive behavior needs of students with autism. The final version of the ABPI was completed in October 1998.

Adaptive Behavior Attitudes Survey (ABAS)

The Adaptive Behavior Attitudes Survey (ABAS) was designed to quantify attitudes and beliefs regarding adaptive behavior skills and related educational programming for students with autism. Both a parent version and a teacher version of the ABAS (see Appendices M and N) were developed for this study. While the two versions contain identical items, they do contain some minor wording differences (e.g., your child versus your student). This measure is divided into four sections. Section 1 was designed to measure beliefs regarding the importance of skills and educational programming across four domains of adaptive behavior (i.e., independent functioning, social skills, prevocational/vocational skills, and functional academics). The ABAS asks respondents to use a 6-point Likert-type scale to rate the degree to which they agree or disagree with five statements regarding each of the four domains of adaptive behavior. Five themes are assessed by the ABAS, including beliefs regarding (1) the importance of adaptive behavior skills for the long-term independence of individuals with autism, (2) the necessity of direct intervention and instruction to address adaptive behavior needs, (3) the relative importance of adaptive behavior in relation to other areas of need, (4) the responsibility of families in addressing their child's adaptive behavior needs, and (5) the responsibility of teachers in addressing their students' adaptive behavior needs. Section 2 of the ABAS measures parent and teacher attitudes regarding when interventions addressing adaptive behavior needs should first be implemented, as well as the most appropriate setting(s) for implementing adaptive behavior interventions (i.e., home, school, community). Section 3 of the ABAS assesses parent and teacher beliefs regarding the

relative importance they place on the four different domains of adaptive behavior in terms of the target student. In this section, the respondent is asked to rank order the four domains of adaptive behavior from most emphasis (1) to least emphasis (4) to reflect how much emphasis she believes should be placed on that area in the target student's educational program. Section 4 of the ABAS assesses parent and teacher beliefs regarding the importance of teaching the target student skills in each of the four domains of adaptive behavior. For each domain of adaptive behavior, respondents are asked to use a 6 point Likert-type scale to rate the domain from (1) very unimportant to (6) very important.

ABAS development and refinement. A preliminary version of the ABAS was developed in July 1998. Two school psychologists, as well as Heartland's Autism Resource Team members were asked to review and critique the preliminary version for appropriateness and completeness of questions. Feedback provided by these individuals was used to further develop and refine this instrument. The ABAS was piloted with two elementary special education teachers who serve students with autism in self-contained programs and two parents of a child with autism in October 1998. Each teacher was asked to fill out the ABAS for two different students in her class. The two parents were asked to fill out the ABAS separately. Information gathered during the pilot indicated that the options delineated in the ABPS were sufficient for representing respondent beliefs and attitudes regarding adaptive behavior and related educational programming. The final version of the ABPS was completed in November 1998.

ABAS reliability. Test-retest reliability and coefficient alpha statistics were used to determine the reliability of the ABAS. Test-retest reliability of the ABAS was determined during the pilot of this instrument. The two special education teachers and two parents participating in the pilot were asked to complete the ABAS twice for each child. Administrations of the ABAS during the pilot study occurred two weeks apart. Test-retest reliability was calculated for the ABAS by comparing item responses in each of the four sections at Time 1 to corresponding item responses at Time 2. The number of agreements and disagreements for each ABAS was calculated. The number of agreements was then divided by the total number of agreements plus disagreements, and multiplied by 100. The overall

test-retest reliability of the ABAS during the pilot was 97.9% (range = 94.5% - 100%). Test-retest information for each section of the ABAS is presented in Table 7.

Coefficient alpha was also calculated on the 41 Adaptive Behavior Attitude Surveys completed for this study. The five ABAS surveys completed during the pilot of this instrument were used for this analysis, as well as the 36 ABAS surveys collected from participating parent and teacher subjects. The analysis of the ABAS resulted in a coefficient alpha of .81, which provides further support regarding the reliability of this instrument.

Table 7. ABAS test-retest reliability

	Number of Agreements	Number of Disagreements	Percent of Total Agreements
Section 1	115	5	95.8
Section 2	266	4	98.5
Section 3	24	0	100.0
Section 4	24	0	100.0
Total	429	9	97.9

Measure Validation

This section provides information regarding the procedures used to validate four of the measures developed for this study, including the Adaptive Behavior Program Status (ABPS), Adaptive Behavior Observation System (ABOS), Adaptive Behavior Program Interview (ABPI), and Adaptive Behavior Attitudes Survey (ABAS). Specifically, the procedures used to determine the content validity of these measures, including congruence analysis and expert raters, are delineated.

Congruence analysis. Content validity was examined for four measures developed for this study via congruence analysis. Congruence analyses involved comparing the adaptive behavior categories contained within each measure with various models of adaptive behavior, including adaptive behavior instruments (i.e., CTAB; Adams, 1986; SIB-R, Bruinincks et al., 1996; Vineland Adaptive Behavior Scales; Sparrow, Balla, & Cicchetti, 1984), descriptions of the educational needs of students with autism (i.e., Heartland ABCD model for training

teachers to work with students with autism documentation; Volmer, Brown, Cook, Drinnin, Finn, Ikeda, Penning, Ross, Tucker, & Wood, 1997), and adaptive behavior definitions in the literature (i.e., McGrew, 1989; Reschly, 1990). The observation categories contained within the ABOS were also compared with models of classroom environment and autism intervention strategies, including environmental assessment measures (i.e., Code for Instructional Structure and Student Academic Response: CISSAR; Stanley & Greenwood, 1981; CISSAR adaptation for use in special education settings: CISSAR-SPED; Rotholz, Whorton, Schulte, Walker, McGrale, Norris, & Greenwood, 1985; and Ecobehavioral System for the Complex Assessment of Preschool Environments: ESCAPE; Greenwood, Carta, Kamps, & Delquadri, 1997) and intervention descriptions (i.e., Heartland ABCD model documentation; Volmer et al., 1997). Congruence was calculated by comparing the specific categories within each of the aforementioned models, including the adaptive behavior instruments, adaptive behavior definitions, environmental assessment measures, and/or intervention descriptions with categories included in each measure developed for this study. For each measure, the total number of categories included in a targeted model that were also included in the measure was calculated, as well as the total number of categories included in a targeted model that were not included the measure. A percentage of congruence between each measure and each targeted model was calculated by dividing the number of agreements by the total number of agreements plus disagreements, and multiplying by 100. Overall congruence between study measures and targeted adaptive behavior models ranged from 88.4% to 97.9%. Additional information regarding the congruence between each measure developed for this study and targeted adaptive behavior models is presented in Table 8 (see Appendix O for specific information regarding the congruence between categories included in each measure and categories included in each of the targeted adaptive behavior models).

Expert raters. Content validity for four measures developed for this study, including the Adaptive Behavior Program Status (ABPS), Adaptive Behavior Observation System (ABOS), Adaptive Behavior Program Interview (ABPI), and Adaptive Behavior Attitudes Survey (ABAS) was also examined via expert raters. The expert raters included an Associate Professor of Human Development and Family Studies from Iowa State University and the Supervisor of Research and Special Projects, including the Autism Resource Team, from

Table 8. Results of congruence analyses

	Number of Agreements	Number of Disagreements	Percent of Total Agreements
Adaptive Behavior Program Status (ABPS)			
CTAB	16	3	84.2
SIB-R	12	1	92.3
Vineland	13	1	92.8
Heartland ABCD Training Model	17	0	100.0
McGrew, 1989	16	1	94.1
Reschly, 1990	16	0	100.0
Total	90	6	93.7
Adaptive Behavior Observation System (ABOS)			
CTAB	16	3	84.2
SIB-R	11	2	84.6
Vineland	13	1	92.8
CISSAR	5	1	83.3
CISSAR-SPED	17	4	90.9
ESCAPE	16	4	80.0
Heartland ABCD Training Model	20	1	95.2
McGrew, 1989	16	1	94.1
Reschly, 1990	16	0	100.0
Total	130	17	88.4
Adaptive Behavior Program Interview (ABPI)			
CTAB	17	2	89.5
SIB-R	13	0	100.0
Vineland	14	0	100.0
Heartland ABCD Training Model	17	0	100.0
McGrew, 1989	17	0	100.0
Reschly, 1990	16	0	100.0
Total	94	2	97.9
Adaptive Behavior Attitude Survey (ABAS)			
CTAB	16	3	84.2
SIB-R	11	2	94.6
Vineland	13	1	92.8
Heartland ABCD Training Model	16	1	94.1
McGrew, 1989	16	1	94.1
Reschly, 1990	16	0	100.0
Total	88	8	91.7

Heartland AEA 11. The two expert raters were asked to critique the aforementioned instruments in terms of the appropriateness and completeness of adaptive behavior domains, as well as the specific items contained within each instrument. Feedback obtained from the two expert raters supported the items included in each instrument. Expert raters also provided suggestions that were used to further refine several coding definitions on the ABOS.

Data Collection

Data for this project were collected during the 1998/1999 and 1999/2000 school years. The following section describes procedures used to train research assistants in collecting data, as well as the data collection procedures used for this study. Specifically, steps taken to collect study data using each instrument are delineated. Table 9 provides an overview of data collection procedures and timelines.

Table 9. Overview of data collection

Measures	Data Collection Procedures	Data Collection Timeline
Educational Record Review Protocol (ERRP)	Student Subject's Special Education Files Reviewed by Research Assistants	Heartland Subjects: September 1998 and Again Prior to Collection of Observational Data AEA 5 and AEA 6 Student Subjects: Following Receipt of Teacher Subject Consent. Prior to Collection of Observational Data
Comprehensive Test of Adaptive Behavior (CTAB) and Scales of Independent Behavior-Revised (SIB-R)	Parent Interview Conducted by Research Assistant	Following Receipt of Parent Subject Consent to Participate. Prior to Collection of Observational Data
Adaptive Behavior Program Status (ABPS)	Teacher Given Survey by Research Assistant. Completed Survey Independently, and Returned to Research Assistant	In School at Time of Collection of Observational Data
Adaptive Behavior Observation System (ABOS)	Three Observations Per Student of Approximately 120 Minutes in Length Randomly Conducted Over the Course of Three Different School Days	Following Receipt of Teacher Subject Consent to Participate
Adaptive Behavior Program Interview (ABPI)	Teacher Interview Conducted by Research Assistant	Following Collection of Observational Data
Adaptive Behavior Program Status (ABAS) Parent Version	Parent Sent Survey Via Mail. Completed Survey Independently. and Returned Via Mail	Following Completion of Parent Interview
Adaptive Behavior Program Status (ABAS) Teacher Version	Teacher Sent Survey Via Mail. Completed Survey Independently. and Returned Via Mail	Following Completion of Teacher Interview

Training Procedures

The following sections describe the procedures used to train the research assistants who assisted in collecting data for this study. Research assistants included three school psychology graduate students and two school psychologists. The three school psychology graduate students assisted during the first year of the study, beginning in August 1998. The two school psychologists participated during the second year of the study, beginning in August 1999. The following sections describe procedures related to initial training, measures and data collection training, data coding training, and qualitative analysis training.

Initial training. Initial training for research assistants involved approximately 18 total hours. Training sessions were broken into 3-hour sessions and provided over the course of four weeks. Approximately 12 hours of initial training targeted background information (e.g., characteristics of autism, adaptive behavior, structured teaching, and Heartland's ABCD model for teaching students with autism); 3 hours targeted specific information regarding the study (e.g., purpose, research questions, methods); and 2 hours targeted expectations (e.g., specific responsibilities, procedures, confidentiality). Several different procedures were used to train research assistants, including presentations, discussion of assigned reading materials, and videotapes. In addition, each research assistant participated in 1 to 5 days of Heartland AEA's five-day ABCD training. Appendix P includes more specific information regarding training timelines, specific topics covered in each training session, a bibliography of assigned readings, and specific responsibilities of research assistants, as well as a template of the confidentiality agreement signed by each of the research assistants. Initial training for one of the school psychologists was less intensive, due to her prior exposure to the background information described above. Initial training for this research assistant was approximately 5 hours in length and targeted specific information regarding the study (e.g., purpose, research questions, methods) and expectations regarding data collection activities (e.g., specific responsibilities, procedures, confidentiality).

Measures and data collection training. Research assistants also received approximately 40 total hours of training on the measures used for this study, as well as specific data collection procedures. The specific amount of time required to train research assistants on each measure used in this study varied significantly, based on amount of time

needed to establish reliable use. A total of approximately 2 hours were provided in training research assistants on the Adaptive Behavior Program Status (ABPS) and Adaptive Behavior Attitude Survey (ABAS). Training involved providing a background on the purpose and development of each instrument, a review of items included in the instrument, and the process with which data would be collected with each instrument. Research assistants also received training on scoring procedures for the ABAS. Since these instruments were to be sent out to participating teachers and parents to complete, only minimal training on these instruments was provided to research assistants. The purpose of the training was to allow research assistants to become familiar enough with the instruments to answer basic questions that could potentially be posed by participating teachers and parents.

The Educational Record Review Protocol (ERRP) was the target instrument for approximately 5 hours of training. One hour of training involved providing background on the purpose of the ERRP, a review of items, and data collection procedures. The remaining 4 hours involved training in completing the ERRP and calculating scores for specific items. To demonstrate the process with which to find, calculate (if necessary), and record demographic information (e.g., age, grade, gender), educational program information (e.g., type of special education program, weighting, level), and diagnostic information (e.g., type of diagnosis, age at diagnosis) from students' special education records, several steps were taken. Research assistants were also trained in procedures for documenting Present Level of Educational Performance (PLEP) information, Individual Educational Program (IEP) goals, and IEP objectives on the ERRP prior to coding. First, two IEPs and pertinent special education records were randomly selected from the pool of potential Heartland AEA subjects. For each file, the primary investigator demonstrated how to use the ERRP to identify needed information, where to find the information in the special education file, and how to record the information appropriately. Five additional special education files that were randomly selected from the remaining pool of potential Heartland AEA subjects were completed as a group. Throughout this process, disagreements were discussed and group consensus was reached on each disputed item before the final ERRP was completed.

Since all research assistants had prior training and experience in administering and scoring standardized, norm-referenced tests, only 2 hours of training were provided on the

Comprehensive Test of Adaptive Behavior (CTAB) and the Scales for Independent Behavior-Revised (SIB-R). Training involved providing research assistants with an overview of both the CTAB and the SIB-R, information regarding the specific administration and scoring procedures for each instrument, and data collection procedures. Prior to administering the CTAB and SIB-R, each research assistant was required to review the technical and administration manuals for each instrument.

Approximately 4 hours of training was provided to research assistants in conducting the Adaptive Behavior Program Interview (ABPI). Research assistants received information during training regarding the purpose of the ABPI, the structure of the instrument, and data collection procedures. Additional information regarding when and how to probe for additional information and to clarify responses was discussed during training. During training in the use of the ABPI, an audio recording of an ABPI interview conducted by the primary investigator was played for research assistants and discussed. Each research assistant was also required to demonstrate reliable use of the ABPI in a mock interview with the primary investigator. Following the mock interview, each research assistant was provided with positive and, if necessary, corrective feedback regarding his/her performance.

The Adaptive Behavior Observation System (ABOS) was the target instrument for a total of approximately 18 hours of training. Research assistants received approximately 2 hours of training regarding the purpose of the ABOS, the structure of the instrument, and data collection procedures. During this portion of the training, coding definitions were also reviewed and discussed. Approximately 16 hours of training on the ABOS involved practice in using the instrument in observations of preschool and elementary students with autism, as well as discussion of results. Practice sessions were 30 minutes in length. At the end of each practice session, research assistants and the primary investigator conducted item by item comparisons on the ABOS and discussed disagreements. Practice sessions were conducted until each research assistant had reached the criteria set for inter-rater agreement of observers (i.e., overall inter-rater agreement of 80%, with reliability in each observation category being at least 75%) for three consecutive practice sessions. Research assistants who assisted during the second year of the study practiced on criterion tapes that had been made and coded by research assistants at the end of the first year of the study. A total of ten 30-minute criterion

tapes were used for training purposes. During these practice sessions, each research assistant would code a criterion tape using the ABOS and conduct an item by item comparison with the completed ABOS for that tape. Disagreements were then discussed by the research assistants and the primary investigator. The average number of practice sessions required by research assistants to establish reliability was 8 (Range = 7-9).

Educational Record Review Protocol (ERRP) Data Collection

Research assistants collected copies of pertinent special education records and Individualized Educational Programs (IEPs) of potential Heartland AEA student subjects at the beginning of the study. Each student subject's special education file was reviewed again following receipt of a teacher consent letter to ensure that the most up-to-date information and IEP were obtained. Prior to collecting observational data (see ABOS data below) for a student subject, the research assistant responsible for that subject contacted the teacher to ensure that changes to the IEP were not anticipated during the observation window. For student subjects in AEA 5 and AEA 6, copies of pertinent special education records and Individualized Educational Programs (IEPs) for each student subject were collected by research assistants following receipt of a teacher consent letter, but prior to the first observation of the student. ERRP data collected for each student subject in this study were determined to be accurate and up-to-date throughout the observation window.

CTAB and SIB-R Data Collection

The Comprehensive Test of Adaptive Behavior (CTAB) and Scales of Independent Behavior-Revised (SIB-R) were completed by research assistants via parent interview for each student subject within five weeks of receiving a parent consent letter. Following receipt of a consent letter confirming a parent's participation in the study, the parent(s) were contacted by a research assistant to schedule the parent interview. To ensure that the information collected during parent interviews was representative of student need at the time of classroom observations, each parent interview was scheduled on a date that was approximately one month after consent had been received. CTAB and SIB-R data were collected from each parent subject an average of four weeks (Range = 1-5) prior to the beginning of ABOS data collection.

Adaptive Behavior Program Status (ABPS) Data Collection

Each teacher subject was given a copy of the Adaptive Behavior Program Status (ABPS) survey on the first day a research assistant was scheduled to begin observations of the target student subject. The ABPS included a letter to the teacher describing the process with which the ABPS should be completed, definitions for each of the adaptive behavior categories included in the ABPS, and a brief demographics questionnaire (see Appendix J). At this time, the research assistant asked the participating teacher to complete the ABPS by the second observation date. Participating teachers were given approximately three weeks to complete the ABPS.

Adaptive Behavior Observation System (ABOS) Data Collection

The Adaptive Behavior Observation System (ABOS) (see Appendix K) was used by research assistants to collect data regarding the adaptive behavior instructional activities in which student subjects were engaged at school. Several steps were taken when scheduling ABOS data collection activities to ensure that the observational data collected were representative of student subjects' engagement in adaptive behavior instructional activities across the school day. Upon receipt of a teacher consent letter, the special education records and IEP of the target student subject were reviewed to determine the length of the student's school day. The specific length of observation sessions for the target student was determined by dividing the total number of minutes that the student subject attended school each day by 3. The first third of the student's school day was designated as "Time 1", the second third as "Time 2", and the third portion as "Time 3". The order in which the three observations were conducted was randomly determined by using two quarters (i.e., two heads = 1, one head and one tail = 2, two tails = 3). The first coin toss indicated the specific time in which the first observation was to occur; the second coin toss indicated the specific time for the second observation. The third observation was conducted during the remaining time frame. For example, student subject 1 attended school for 360 minutes per day. Therefore, each observation of the student was 120 minutes in length. The order in which the observations were conducted was as follows: "Time 3", "Time 1", "Time 2". Therefore the first observation was conducted from 1:00 p.m. to 3:00 p.m. The second observation was conducted three weeks later from 9:00 am to 11:00 am. The final observation was conducted

three weeks later from 11:00 am to 1:00 p.m. This procedure was used for each student subject in this study. During each observation session, a research assistant collected ABOS data on the target student throughout the entire length of the session. Every 30 seconds, the observer recorded what occurred for the greatest portion of the interval in 5 different categories (i.e., instructional organization, primary skill area, student engagement, primary interactor, and adult/peer instruction-related behavior). For each 120-minute observation session, a total of 1200 data points were collected (240 data points per category).

Adaptive Behavior Program Interview (ABPI) Data Collection

The Adaptive Behavior Program Interview (ABPI) (see Appendix L) was used to interview each teacher subject who participated in the study. During the collection of observational data for a target student subject, the research assistant scheduled an ABPI interview with the participating teacher. ABPI interviews with teachers were completed an average of 1 week (Range = 1-3) after the completion of ABOS data collection. At the beginning of each ABPI interview, the research assistant conducting the interview obtained verbal consent from the teacher to record the interview on audiotape so that the contents of the interview could be transcribed.

Adaptive Behavior Attitude Survey (ABAS) Data Collection

The parent version of the Adaptive Behavior Attitude Survey (ABAS) (see Appendix M) was sent to parent subjects following completion of the parent interview. The ABAS was accompanied by a letter describing the process with which the ABAS was to be filled out, as well as a brief demographics questionnaire. An Iowa State University form entitled "Independent Personal Service" was also included. Parents were required to complete this form and return it with the completed ABAS and demographics questionnaire in order to receive a $20 stipend for participating in the study. Parent subjects who did not return the completed ABAS within three weeks were sent a second packet. Teacher subjects were sent the teacher form of the ABAS (see Appendix N) following completion of the teacher interview. The ABAS was accompanied by a letter describing the process with which the ABAS was to be filled out, as well as the Iowa State University form entitled "Independent Personal Service". Teachers were required to complete this form and return it with the completed ABAS in order to receive a $20 stipend for participating in the study. Teacher

subjects who did not return the completed ABAS within three weeks were sent a second packet.

Data Coding

All data collected for this study were coded by the primary investigator and research assistants. This section describes procedures that were used to train research assistants in data coding procedures. In addition, the specific procedures used to code data collected for this study, including student adaptive behavior needs, adaptive behavior IEP goals and objectives, teacher-reported interventions, intervention quality, specific need congruence, general need congruence, student engagement in adaptive behavior instructional activities, and opportunity for student engagement in adaptive behavior instructional activities. Table 10 provides an overview of the data coding procedures used for this study.

Training Procedures

This section describes the data coding training provided to research assistants. Specifically, procedures used to train research assistance in coding data collected for this study, as well as in conducting qualitative analyses, are presented.

Data coding training. Research assistants received a total of approximately 12 hours of training on coding the data collected for this study. Approximately 6 hours were spent training research assistants in the adaptive behavior coding definitions (i.e., general domains, general adaptive behavior domains, and specific adaptive behavior domains) (see Appendix H). To this end, adaptive behavior coding definitions were reviewed with research assistants and practice in applying coding definitions to various types of data collected for this study was provided. Specifically, research assistants received practice using the adaptive behavior coding definitions to code Present Level of Educational Performance (PLEP) information, IEP goals, IEP objectives, and teacher-reported student need. To train research assistants in coding PLEPs, IEP goals, and IEP objectives, two Individualized Educational Programs (IEPs) were used by the primary investigator as examples. Following this, the PLEPs, IEP goals, and IEP objectives from three additional IEPs were completed as a group. Throughout this process, disagreements were discussed and group consensus was reached on each disputed item before final codes were recorded. Teacher-reported needs identified from a sample ABPI interview was used to train research assistants to apply adaptive behavior

Table 10. Overview of data coding

Variables	Data Sources	Data Coders
Adaptive Behavior Needs of Student Subjects	PLEPs from Student IEPs	Research Assistants
	CTAB, SIB-R	Research Assistants
	Teacher ABPI Interviews	Research Assistants and Primary Investigator
IEP Goals and Objectives	Student IEPs	Research Assistants
Interventions	Teacher ABPI Interviews	Research Assistant and Primary Investigator
Quality of Interventions	Teacher ABPI Interviews	Research Assistant and Primary Investigator
Specific Need Congruence	PLEPs, IEP Goals, and IEP Objectives from Student IEPs	Research Assistant and Primary Investigator
	CTAB, SIB-R	
	Teacher ABPI Interviews	
General Need Congruence	PLEPs, IEP Goals, and IEP Objectives from Student IEPs	Research Assistant and Primary Investigator
	CTAB, SIB-R	
	Teacher ABPI Interviews	
Student Engagement in Adaptive Behavior Instructional Activities	ABOS	Primary Investigator
Opportunity For Student Engagement In Adaptive Behavior Instructional Activities	ABOS	Primary Investigator

coding definitions to ABPI need information. Teacher-reported needs from three additional ABPI interviews were coded as a group, during which time disagreements were discussed and group consensus was reached on each disputed item before final codes were recorded.

Research assistants received approximately 3 hours of training in identifying student needs using the CTAB and SIB-R. During this training, the decision making process for identifying student need(s) on each instrument were reviewed (see Appendices Q and R), as well as the relationship between the adaptive behavior coding definitions discussed above and CTAB and SIB-R subscales (see Appendix S). The primary investigator demonstrated

the process of identifying and coding student need using the CTAB and SIB-R with data from one student subject. CTAB and SIB-R student needs from three additional cases were coded as a group, during which time disagreements were discussed and group consensus was reached on each disputed item before final codes were recorded.

Research assistants also received approximately 3 hours of training in coding ABOS data related to student engagement in adaptive behavior instructional activities, as well as ABOS data related to opportunity for student engagement in adaptive behavior instructional activities. During this training, decision making guides for identifying student engagement in adaptive behavior instructional activities and for identifying opportunity for student engagement in adaptive behavior instructional activities were reviewed (see Appendices T and U). ABOS data from one student subject was used by the primary investigator to demonstrate the process for using the decision making guides to determine the ABOS intervals in which the student was engaged in adaptive behavior instructional activities, as well as intervals in which the student had the opportunity to engage in adaptive behavior instructional activities. ABOS data for three additional cases were coded as a group. During this group process, disagreements were discussed and group consensus was reached on each disputed item before final decisions were made regarding the data.

Qualitative analysis training. Approximately 3 total hours of training were provided to one research assistant on qualitative analysis procedures. The purpose of this training was to provide the research assistant with the necessary background in and understanding of qualitative analysis to assist with analysis of teacher interview data collected via the ABPI. The procedures used to train the research assistant, including presentations and discussion of assigned reading materials. Appendix O includes more specific information regarding specific topics covered in each training session, as well as a bibliography of assigned readings. A sample ABPI interview was used to train the research assistant in identifying teacher-reported student needs and teacher-reported interventions, as well as at identifying individual quotes regarding specific factors that teachers reported made addressing the adaptive behavior needs of student subjects difficult and additional resources or changes required to address all student subject needs.

Data Coding Procedures

This section delineates specific procedures employed to code the data collected for this study. Specifically, procedures related to coding student adaptive behavior need, IEP goals and objectives, teacher-reported interventions, intervention quality, specific need congruence, general need congruence, student engagement in adaptive behavior instructional activities, and opportunities for student engagement in adaptive behavior instructional activities are presented.

Student adaptive behavior need. Several steps were taken to identify and code student need. For the purpose of this study, specific areas of student need were identified via review of Present Level of Educational Performance (PLEP) information, CTAB results, SIB-R results, and teacher interview data. A student was identified as having need in a specific adaptive behavior area if the student was found to have need based on information from one or more of these sources.

Several steps were taken to identify and code student need from PLEP information contained in student subjects' Individualized Educational Programs (IEPs). Each section of PLEP information from each student's IEP was first examined to determine if it focused on more than one specific area of adaptive behavior. PLEPs that were found to focus on more than one area were divided into smaller components. For example, if a PLEP contained information regarding both an expressive language need and a social skills need, the PLEP information was divided into two distinct sections. PLEP information was first coded according to seven general domain areas (i.e., academic, behavior, communication and language, daily living and self-help, motor, prevocational and vocational, social) using a modified version of the Program Evaluation for Procedural and Substantive Efficacy (PEPSE) (Smith, 1987) (see Appendix H for domain descriptors). Each PLEP was then coded in terms of the specific adaptive behavior domain that it represented (see Appendix H for descriptors). PLEPs were then coded according to four general adaptive behavior domains (i.e., independent functioning, functional academics, prevocational/vocational, social communication) using a modified version of Reschly's (1990) adaptive behavior definitions (see Appendix H).

To identify and code student adaptive behavior needs from the Comprehensive Test of Adaptive Behavior (CTAB) information collected during interviews with participating parents, several steps were taken. Each CTAB was first scored according to procedures delineated in the CTAB Technical Manual (Adams, 1986). The decision making guide developed to assist in identifying student need from CTAB information (see Appendix Q) was then used. First, the student's qualitative rank on each specific subscale of the CTAB was reviewed. If CTAB results indicated that the student's skills ranked average, low average, or low on a specific subscale, based on CTAB norms for "Mentally Retarded Students in School Settings", further analysis of the CTAB was undertaken. This involved reviewing specific skills within the CTAB subscale. A student was identified as having need in a specific area of the CTAB if two additional criteria were met: (1) the student was missing one or more skills that were considered typical for his/her age and (2) the skill deficit had the potential for either interfering with the student's current social inclusion OR, if continued into adulthood, had the potential for decreasing the individual's independence and, thus, increasing his/her need for third party support. Following identification of student need based on CTAB information, each specific area of need was coded using the seven general domain areas (i.e., academic, behavior, communication and language, daily living and self-help, motor, prevocational and vocational, social); the 18 specific adaptive behavior domains; and the four general adaptive behavior domains (independent functioning, social skills, vocational skills, functional academics) (see Appendix H for definitions).

Several steps were taken to identify and code student behavioral need from Scales of Independent Behavior-Revised (SIB-R) information collected during interviews with participating parents. Each SIB-R was first scored according to procedures delineated in the SIB-R Technical Manual (Bruininks, Woodcock, Weatherman, & Hill, 1996) The decision making guide developed to assist in identifying student behavioral needs from SIB-R information (see Appendix R) was then used. First, the student's qualitative rank on each specific maladaptive behavior index of the SIB-R was reviewed (i.e., internalized, asocial externalized, general). If SIB-R results indicated that the student's behavior ranked marginally serious to very serious on a specific index, based on SIB-R norms, further analysis of the SIB-R was undertaken. This involved reviewing specific parent-reported information

in the problem behavior subscales within the SIB-R index. A student was identified as having need in a specific area of the SIB-R if two additional criteria were met: (1) the student was reported to engage in inappropriate behavior(s) that were significantly discrepant from what would be expected for the student's age and (2) the inappropriate behavior(s) had the potential for significantly interfering with the student's learning or the learning of others OR had the potential for resulting in significant harm to the student or others. Following identification of student behavioral need based on SIB-R information, each specific need was coded using the seven general domain areas (i.e., academic, behavior, communication and language, daily living and self-help, motor, prevocational and vocational, social); the 18 specific adaptive behavior domains; and the four general adaptive behavior domains (independent functioning, social skills, vocational skills, functional academics) (see Appendix H for definitions).

To identify and code student adaptive behavior needs from the Adaptive Behavior Program Interview (ABPI) information collected during interviews with participating teachers, several steps were taken. First, a transcript of each ABPI interview was prepared. The transcript from each ABPI teacher interview was then read in its entirety. All information related to student need was then highlighted. For the purpose of this study, student need in a specific area was identified if the teacher indicated that the student had need in that area and provided a brief description of the need. Next, student information regarding each specific area of adaptive behavior need (see Appendix H for definitions) was reviewed. For each specific area of adaptive behavior need, a yes/no rating was used to code whether or not the student had need in that area. A yes/no rating was also used to code whether or not the student had need in each of the four general areas of adaptive behavior (independent functioning, social skills, vocational skills, functional academics) (see Appendix H). Teacher-reported student needs identified from ABPI information were also coded according to the seven general domain areas (i.e., academic, behavior, communication and language, daily living and self-help, motor, prevocational and vocational, social) (see Appendix H).

IEP goals and IEP objectives. The IEP goals and objectives of each student subject were first examined to determine if any focused on more than one specific area of adaptive behavior. IEP goals and objectives that were found to focus on more than one area were

divided into smaller components. For example, if an IEP goal stated that "Tommy will develop skills in expressing his wants and needs and interacting appropriately with his peers", the goal was divided into "Tommy will develop skills in expressing his wants and needs" and " Tommy will develop skills in interacting appropriately with his peers", each of which was viewed as a separate IEP goal. Similar procedures were used to review and identify IEP objectives. IEP goals and objectives were each first coded according to the seven general domain areas (i.e., academic, behavior, communication and language, daily living and self-help, motor, prevocational and vocational, social) using a modified version of the Program Evaluation for Procedural and Substantive Efficacy (PEPSE) (Smith, 1987) (see Appendix H for descriptors). Each IEP goal or objective was then coded in terms of the specific adaptive behavior domain that it represented (see Appendix H for descriptors). IEP goals and objectives were then each coded according to the four general domains of adaptive behavior (independent functioning, social skills, prevocational and vocational skills, functional academics) (see Appendix H).

Teacher-reported interventions. To identify and code teacher-reported interventions from the Adaptive Behavior Program Interview (ABPI) information collected during interviews with participating teachers, several steps were taken. The ABPI transcript for each student subject was read in its entirety. All information regarding each intervention reported by the teacher as being implemented to address student need in a specific area of adaptive behavior was copied from the transcript and placed in a separate word processing file. Each teacher-reported intervention was then coded according to the area of need that it was reported to address in each of the three coding schemas (i.e., general domain, specific adaptive behavior domain, general adaptive behavior domain) described earlier (see Appendix H for definitions).

Quality of teacher-reported interventions. To develop criteria for rating the quality of teacher-reported interventions, a sort procedure was used. Initially, three, randomly selected, ABPI transcripts were examined by both the author and a research assistant. All information regarding each intervention reported by the teacher as being implemented to address student need in a specific area of adaptive behavior was copied from the transcript and placed in a separate word processing file. Each teacher-reported interventions obtained during this

process was sorted on a 5-point scale, from high quality (5) to low quality (1), to reflect the degree to which the intervention was individualized to meet the student's specific needs, contained quality intervention strategies, and was implemented on a consistent basis. Based on this sort, teacher-reported interventions in each rating category were reviewed and intervention quality criteria were written (see Appendix V for intervention quality ratings and specific decision making steps used in coding intervention quality). Each teacher-reported intervention from the remaining 15 ABPI transcripts was reviewed and the quality of the intervention was then rated on the 5 point scale (5 = high quality, 1 = low quality) contained in Appendix V.

Specific need congruence. For the purpose of this study, specific need congruence was used to represent the degree to which the student subject's specific adaptive behavior need was addressed within his/her educational program. To develop criteria for rating specific need congruence, a sort procedure was used. Initially, three, randomly selected, student subject files, were examined by both the author and a research assistant. All information regarding student need (i.e., need information from PLEP, CTAB, SIB-R and/or ABPI teacher-reported need) and educational program (i.e., IEP and/or ABPI teacher-reported intervention) for each specific area of adaptive behavior (see Appendix H for definitions) were reviewed. All related information regarding a specific area of adaptive behavior need from the student subject's file was then copied and/or summarized in a separate word processing file. For each specific area of adaptive behavior in which the student subject had an identified need, student need and related educational program information obtained during this process was sorted on a 5-point scale, from very congruent (5) to not congruent (1), to reflect the degree to which the student's specific adaptive behavior need was addressed within his/her educational program. Based on this sort, student need and related educational program information in each rating category were reviewed and specific need congruence criteria were written (see Appendix W for specific need congruence ratings and specific decision making steps used in coding specific need congruence). The files of each of the remaining 15 student subjects were reviewed using the process described above. For each student subject, specific need congruence for each specific area of adaptive

behavior in which the student subject had an identified need was then rated on the 5 point scale (5 = very congruent, 1 = not congruent) contained in Appendix W.

General need congruence. For the purpose of this study, general need congruence was used to represent whether or not the majority of a student's specific adaptive behavior needs within a general area of adaptive behavior need were addressed within his/her educational program. General need congruence was calculated for each student subject in each of the four general areas of adaptive behavior (i.e., independent functioning, social skills, prevocational and vocational skills, functional academics) (see Appendix H for definitions). To determine goal congruence, a percentage was first calculated. This was done by dividing the number of specific areas of adaptive behavior within a general adaptive behavior domain that received a specific need congruence rating of 4 or 5 by the total number of specific adaptive behavior needs the student had in that general adaptive behavior domain, and multiplying by 100. Based on this percentage, a yes/no rating was used to code whether or not the majority of a student's specific adaptive behavior needs within a general area of adaptive behavior need were addressed within his/her educational program. A "yes" rating, indicating general need congruence, was coded when over 50% of a student's specific adaptive behavior needs were addressed by his/her educational program; otherwise, a "no" rating, indicating no general need congruence, was coded.

Student engagement in adaptive behavior instructional activities. For the purpose of this study, student engagement in adaptive behavior instructional activities was defined as a student who was either attending or responding to an adult-organized instructional activity which targeted a specific area of adaptive behavior. To calculate the percentage of each student subject's school day in which s/he was engaged in adaptive behavior instructional activities from ABOS data, several steps were taken. First, ABOS data for each student was reviewed on an interval by interval basis. For each interval, data for each of the 5 different categories (i.e., instructional organization, primary skill area, student engagement, primary interactor, and adult/peer instruction-related behavior) were compared. The ABOS engagement decision making guide (see Appendix T) was then used to determine whether the student was engaged in an adaptive behavior instructional activity during each interval. After completing a review of each interval in a student subject's ABOS, the total number of

intervals in which the student was engaged in specific adaptive behavior instructional activities was calculated. A percentage was then calculated by dividing the total number of intervals in which the student was engaged in adaptive behavior instructional activities by the total number of intervals that the student was observed. Similar steps were taken to calculate the percentage of the school day in which each student was engaged in instructional activities in each of the specific areas of adaptive behavior, as well as in each of the general adaptive behavior areas.

Opportunity for student engagement in adaptive behavior instructional activities. For the purpose of this study, opportunity for student engagement in adaptive behavior instructional activities was defined as an adult-organized instructional activity that targeted a specific area of adaptive behavior, regardless of student engagement. To calculate the percentage of each student subject's school day in which s/he had the opportunity to engage in adaptive behavior instructional activities from ABOS data, several steps were taken. First, ABOS data for each student was reviewed on an interval by interval basis. For each interval, data for each of four different categories (i.e., instructional organization, primary skill area, primary interactor, and adult/peer instruction-related behavior) were compared. The ABOS opportunity decision making guide (see Appendix U) was then used to determine whether an adult-organized instructional activity which targeted a specific area of adaptive behavior was in place. After completing a review of each interval in a student subject's ABOS, the total number of intervals in which the student had the opportunity to engage in specific adaptive behavior instructional activities was calculated. A percentage was then calculated by dividing the total number of intervals in which the student had the opportunity to engage in adaptive behavior instructional activities by the total number of intervals that the student was observed. Similar steps were taken to calculate the percentage of the school day in which each student had the opportunity to engage in instructional activities in each of the specific areas of adaptive behavior, as well as in each of the general adaptive behavior areas.

Statistical and Qualitative Analyses

The statistical analyses used in this study included several descriptive and correlational procedures. In addition, qualitative analysis procedures were employed. Descriptive statistics were utilized to determine inter-rater agreement, as well as to

summarize information regarding (1) student adaptive behavior need, (2) adaptive behavior programs, (3) student adaptive behavior need/educational program congruence, (4) teacher-reported IEP team decision making underlying the development of IEPs, and (5) parent and teacher beliefs regarding adaptive behavior and related programming. T-test analyses were used to answer research question #1b regarding the relationship between student adaptive behavior need/documented program congruence and the amount of school time student subjects were engaged in adaptive behavior instructional activities at school. Exploratory descriptive statistics were employed to answer research question #2b regarding the relationship between parent/teacher beliefs and student engagement in adaptive behavior instructional activities. Qualitative analysis procedures, as well as descriptive statistics, were utilized to analyze ABPI teacher interview data and answer research question #2c regarding factors that teachers report affected their ability to address the adaptive behavior needs of students with autism.

Inter-Rater Agreement

Inter-rater agreement was calculated for all data coding procedures used in this study. Inter-rater agreement was calculated for the coding of data from multiple sources, including ERRP data, Individualized Education Program (IEP) information (i.e., PLEPs, IEP goals, IEP objectives), CTAB need data, SIB-R need data, ABOS intervention engagement data, ABPI teacher interview data (i.e., teacher-reported needs, teacher-reported interventions, factors which teachers reported interfere with their ability to address the adaptive behavior needs of students with autism), specific need congruence, and general need congruence. For each variable, approximately 20% of subjects were randomly selected. Data from these subjects were coded and inter-rater agreement was calculated. Inter-rater agreement was calculated by dividing the total number of agreements between two coders by the sum of total agreements and disagreements and then multiplying by 100. When calculating inter-rater agreement for each variable, discrepancies were discussed and consensus reached before the information obtained for the remaining 80% of subjects was coded.

Descriptive Information

Several descriptive statistical techniques were used to summarize demographic information, as well as information regarding (1) student needs (i.e., PLEP needs, CTAB

needs, SIB-R needs, ABPI teacher-reported needs, overall needs), (2) student IEPs (i.e., individuals participating in IEP development, domains of IEP goals and objectives), (3) teacher-reported interventions (i.e., intervention domains, intervention quality, intervention difficulty ratings), (4) total ABOS data (i.e., instructional organization, student engagement, primary interactor, adult/peer instruction-related behavior, primary skills), (5) ABOS opportunity data (i.e., primary skills), and (6) parent and teacher ABAS data (i.e., parent and teacher adaptive behavior rankings, adaptive behavior ratings, appropriate settings for addressing student adaptive behavior needs). Specifically, descriptive statistical procedures, including frequency distribution, mean, median, range, percentage, and standard deviation, were used to examine each of these variables.

Research Question #1a

Several descriptive statistical procedures were used to answer research question #1a, *"To what extent do students with autism who have adaptive behavior need have an IEP goal(s) and/or a specific classroom intervention addressing that need?"* Specifically, frequency distribution statistical procedures were used to summarize information regarding specific need congruence and general need congruence.

Research Question #1b

Descriptive statistical analyses and one-way t-test procedures were used to answer research question #1b, *"Do students with autism who have IEP goals and/or specific interventions addressing adaptive behavior needs spend a greater percentage of their school day engaged in adaptive behavior instructional activities than students with autism who do not have IEP goals and/or specific interventions addressing adaptive behavior needs?"* For each specific area of adaptive behavior, frequency distribution, percentage, and mean statistical procedures were used to summarize information regarding the average percentage of time student subjects in the need addressed group and the need not addressed group were engaged in domain-specific adaptive behavior instructional activities. T-test analyses were performed for sixteen specific areas of adaptive behavior. For each t-test, the dependent variable was the percentage of school time that student subjects were engaged in instructional activities related to the specific adaptive behavior need. The independent variable was specific need congruence; whether or not the student had an IEP goal(s) and/or specific

intervention addressing his/her specific adaptive behavior need. Only students with need in the target domain of adaptive behavior were included in these t-test analyses. T-test analyses were also performed for each of the four domains of adaptive behavior (i.e., independent functioning, functional academics, prevocational/vocational, social/communication). For each of these t-tests, the dependent variable was the percentage of school time that student subjects were engaged in instructional activities related to general adaptive behavior need. The independent variable was general need congruence; whether or not the student had IEP goals and/or specific interventions addressing the majority of his/her specific adaptive behavior needs within the general adaptive behavior domain. Only students with one or more needs in the target general domain of adaptive behavior were included in these t-test analyses.

Research Question #2a

To answer the research question #2a, "*What reasons do teachers report for team decisions regarding whether or not to address the adaptive behavior needs of students with autism?*" descriptive procedures were used. For each general area of adaptive behavior (see Appendix G), percentages were calculated to represent the number of teachers who indicated each specific statement as the primary reason underlying the IEP team's decision regarding whether or not to write an IEP goal to address student need(s) in that area. These procedures were used also used for each specific area of adaptive behavior (see Appendix H).

Research Question #2b

Exploratory and descriptive statistical procedures were used to answer research question #2b, "*How are teacher and parent beliefs regarding the importance of adaptive behavior related to the amount of school time students with autism are engaged in adaptive behavior instructional activities?*" The exploratory descriptive statistical procedures used to answer this question were chosen due to the small size of the study sample. The following procedures were used for each of the four general areas of adaptive behavior (i.e., independent functioning, social skills, vocational skills, and functional academics). First, interval data from the ABOS regarding the amount of school time student subjects were engaged in domain-specific adaptive behavior instructional activities and from the ABAS regarding parent and teacher beliefs regarding the importance of domain-specific adaptive behavior and related programming was converted to ordinal data. Percentage data from the

ABOS was coded on a 3-point scale (i.e., high, medium, low) for each general area of adaptive behavior to reflect the degree of student engagement in adaptive behavior instructional activities at school. Cutoff scores for these three ratings were made for each general area of adaptive behavior based on frequency distribution information. Parent and teacher ABAS subscale scores were similarly coded on a 3-point scale (i.e., high, medium, low) to reflect the strength of beliefs regarding the importance of adaptive behavior skills and related programming. Potential scores on ABAS subscales ranged from 5 to 30. Cutoff scores for these three ratings were set at 5-14 (low), 15-22 (medium), and 22+ (high). Second, a 3X3 matrix was used to tally the relationship between the ratings of the amount of school time student subjects were engaged in domain-specific adaptive behavior instructional activities and the ratings of respondent beliefs regarding the importance of domain-specific adaptive behavior and related programming. Separate comparisons in each general area of adaptive behavior were made for parent subjects and for teacher subjects. Finally, Pearson product moment correlations were used to further explore the relationships between parent and teacher beliefs and student instructional engagement in each general area of adaptive behavior.

Research Question #2c

Qualitative analysis procedures, as well as descriptive procedures, were employed to answer research question #2c, *"What factors do teachers report affect their ability to address the adaptive behavior needs of students with autism?"* A copy of each ABPI transcript was read individually by the primary investigator and a research assistant. Individual quotes within each ABPI transcript that were related to any factor which the teacher perceived made addressing the adaptive behavior needs of student subjects difficult were identified and highlighted. After an ABPI transcript was completed, comparisons were made between the quotes identified by each coder. This procedure was used to ensure that all relevant quotes were identified and that each quote represented only one, specific idea. This procedure was used for each ABPI transcript until all relevant quotes were identified. Individual quotes were then each copied onto separate strips of paper. Individual quotes were then sorted into categories. This process was completed individually by both the primary investigator and the research assistant. The categories developed by both the primary investigator and the research

assistant were then compared. Disagreements were discussed and consensus reached prior to identifying and defining the final categories. Each quote was then coded according to the specific category it represented. Following this, descriptive statistical procedures were used to summarize the data. Specifically, frequency distributions and percentage procedures were used to represent the frequency with which teacher subjects made quotes regarding a specific factor that interfered with their ability to address the adaptive behavior needs of student subjects. These statistical procedures were used to represent teacher interview information in each of the specific areas of adaptive behavior, each of the general areas of adaptive behavior, and across all adaptive behavior domains. Similar procedures were used to analyze ABPI information regarding the additional resources or changes teacher subjects reported as being required to meet all needs of the student subjects.

Results

The results section is organized into seven parts. Inter-rater agreement obtained between the primary investigator and research assistants in coding data for this study are reported in the first section. The second section provides summaries of general descriptive information regarding student need, IEP goals and objectives, teacher-reported interventions, ABOS data, and ABAS data. The third section describes the results of statistical analyses conducted to answer research question #1a regarding need congruence, the degree to which students' adaptive behavior needs were addressed within their educational programs. The fourth section describes the results of statistical analyses used to answer research question #1b regarding the relationship between general need congruence and the amount of time student subjects were engaged in adaptive behavior instructional activities at school. The fifth section describes the results of statistical analyses used to answer research question #2a regarding the reasons underlying IEP team decisions regarding whether or not to write IEP goals in specific areas of adaptive behavior. The sixth section describes the results of statistical analyses used to address research question #2b regarding the relationship between parent and teacher adaptive behavior attitudes and beliefs and the amount of time students with autism are engaged in various adaptive behavior instructional activities at school. The seventh section describes the results of qualitative analyses used to answer research question

#2c regarding factors teacher subjects report affect their ability to address the adaptive behavior needs of students with autism.

Inter-rater Agreement

All data for this study were collected by research assistants. Research assistants also assisted the primary investigator in coding these data. To determine the reliability with which coding definitions were applied by the research assistants and the primary investigator to code various types of data, inter-rater agreement was calculated for each type of data. Specifically, inter-rater agreement was calculated for ERRP data, Individualized Education Program (IEP) information (i.e., PLEPs, IEP goals, IEP objectives), CTAB need data, SIB-R need data, ABOS intervention engagement data, ABPI data (i.e., teacher-reported needs, teacher-reported interventions, factors that teachers reported interfere with their ability to address the adaptive behavior needs of students with autism, additional resources or changes that were required to address all the adaptive behavior needs of student subjects), congruence data (i.e., specific need congruence, general need congruence, IEP goal congruence). The student files selected for reliability checks were randomly selected using a random numbers table. As reliability checks were performed at different times during the study, the specific files that were randomly selected to determine inter-rater agreement varied for each type of data. Information regarding inter-rater agreement for each type of data is presented in the following sections.

Educational Record Review Protocol (ERRP) Data

Educational Record Review Protocol (ERRP) data were collected and coded by research assistants. To determine inter-rater agreement, 20% (13/65) of the special education files collected for this study were selected using a random numbers table. Each file was coded separately by two research assistants. Inter-rater agreement estimates were calculated for educational program demographics (i.e., type of IEP staffing, grade level, special education weighting, and percentage of time student received special education services), restrictiveness of program information (i.e., primary instructional program, supplemental assistance, and participation with typical peers) diagnostic information (i.e., medical diagnosis, educational diagnosis, chronological age at diagnosis), and data regarding individuals in attendance at the IEP meeting, as well as an overall total. Inter-rater agreement estimates were calculated by

dividing the total number of agreements by the total number of agreements plus disagreements. The average overall inter-rater agreement of coders on the ERRP following training on the instrument was 98.5% (range = 94.6% - 100.0%). Inter-rater agreement information for each specific category on the ERRP is presented in Table 11.

Table 11. Inter-rater agreement: ERRP data

	Number of Agreements	Number of Disagreements	Percent of Total Agreements
Educational Program Demographics	114	3	97.4
Restrictiveness of Program	35	4	89.7
Diagnostic Information	39	0	100.0
Individuals at IEP Meeting	286	0	100.0
Overall ERRP Inter-Rater Agreement	474	7	98.5

Individualized Education Program (IEP) Data

Individualized Education Program (IEP) data were collected and coded by research assistants. To determine inter-rater agreement, 20% (13/65) of the special education files collected for this study were selected using a random numbers table. Each file was coded separately by two research assistants. Inter-rater agreement rates were calculated for Present Level of Educational Performance (PLEP) information, IEP goals, and IEP objectives. Inter-rater agreement estimates were calculated by dividing the total number of agreements by the total number of agreements plus disagreements. The average overall inter-rater agreement of coders on IEP information was 86.2% (range = 81.5% - 100.0%). Inter-rater agreement information for each specific category of IEP information is presented in Table 12.

Comprehensive Test of Adaptive Behavior (CTAB) Data

Comprehensive Test of Adaptive Behavior (CTAB) data were collected, scored, and coded by research assistants. To determine inter-rater agreement, 22% (4/18) of the CTABs collected for this study were randomly selected using a random numbers table. Each CTAB was coded separately by two research assistants. Inter-rater agreement rates were calculated for identified student needs, general need domains, specific adaptive behavior need domains,

Table 12. Inter-rater agreement: Student IEP data

	Number of Agreements	Number of Disagreements	Percent of Total Agreements
PLEP			
General Domain	58	10	85.3
General Adaptive Behavior Domain	58	10	85.3
Specific Adaptive Behavior Domain	57	11	83.8
Total	173	31	84.8
IEP Goals			
General Domain	62	7	89.8
General Adaptive Behavior Domain	60	9	86.9
Specific Adaptive Behavior Domain	59	10	85.5
Total	181	26	87.4
IEP Objectives			
General Domain	130	18	87.8
General Adaptive Behavior Domain	127	21	85.8
Specific Adaptive Behavior Domain	126	22	85.1
Total	383	61	86.3
Overall Inter-Rater Agreement	737	118	86.2

general adaptive behavior need domains, as well as an overall total. Inter-rater agreement estimates were calculated by dividing the total number of agreements by the total number of agreements plus disagreements. The average overall inter-rater agreement of coders on the CTAB following training on the instrument was 96.6% (range = 93.3% - 100.0%). Inter-rater agreement information for each specific category on the CTAB is presented in Table 13.

Scales of Independent Behavior-Revised (SIB-R) Data

Scales of Independent Behavior-Revised (SIB-R) data were collected, scored, and coded by research assistants. To determine inter-rater agreement, 22% (4/18) of the SIB-Rs collected for this study were randomly selected using a random numbers table. Each SIB-R was coded separately by two research assistants. Inter-rater agreement rates were calculated for identified student needs and specific adaptive behavior need domains, as well as an overall total. Inter-rater agreement estimates were calculated by dividing the total number of agreements by the total number of agreements plus disagreements. The average overall inter-rater agreement of coders on the SIB-R following training on the instrument was 96.0% (range = 85.7% - 100.0%). Inter-rater agreement information for each specific category on the SIB-R is presented in Table 14.

Table 13. Inter-rater agreement: CTAB student needs

	Number of Agreements	Number of Disagreements	Percent of Total Agreements
CTAB Need	44	4	91.7
CTAB Needs			
General Domain	23	0	100.0
General Adaptive Behavior Domain	23	0	100.0
Specific Adaptive Behavior Domain	23	0	100.0
Total	69	0	100.0
Overall CTAB Inter-Rater Agreement	113	4	96.6

Table 14. Inter-rater agreement: SIB-R student needs

	Number of Agreements	Number of Disagreements	Percent of Total Agreements
SIB-R Identified Need	15	1	93.7
Specific Adaptive Behavior Domain	9	0	100.0
Overall SIB-R Inter-Rater Agreement	24	1	96.0

ABOS Data

Adaptive Behavior Observation System (ABOS) data were collected by research assistants. Instructional opportunity and instructional engagement coding was completed by the primary investigator. To determine inter-rater agreement, ABOS data collected for 22% (4/18) of the students were randomly selected using a random numbers table. The number of intervals of ABOS data for each randomly selected student was 720. ABOS data for each student were coded separately by the primary investigator and a research assistant. Inter-rater agreement rates were calculated for the percentage of time student subjects were engaged in specific adaptive behavior instructional activities and the percentage of time student subjects had the opportunity to engage in specific adaptive behavior instructional activities, as well as an overall total. Inter-rater agreement estimates were calculated by dividing the total number of agreements by the total number of agreements plus disagreements. The average overall inter-rater agreement of coders on the ABOS following training on the instrument was 99.0% (range = 98.7% - 99.3%). Inter-rater agreement information for each specific category on the ABOS is presented in Table 15.

Table 15. Inter-rater agreement: ABOS data

	Number of Agreements	Number of Disagreements	Percent of Total Agreements
Primary Skill: Engagement in Instruction	2843	37	98.7
Primary Skill: Opportunity for Instruction	2858	22	99.2
Overall ABOS Inter-Rater Agreement	5701	59	99.0

Adaptive Behavior Program Interview (ABPI) Data

Adaptive Behavior Program Interview (ABPI) data were collected by research assistants. ABPI data were coded by both the primary investigator and a research assistant. To determine inter-rater agreement, 22% (4/18) of the ABPI interviews collected for this study were randomly selected using a random numbers table. For each ABPI interview, student need, teacher-reported interventions, and intervention quality were coded separately by the primary investigator and a research assistant. Individual quotes regarding teacher-reported factors that interfered with their ability to address the adaptive behavior needs of student subjects and additional resources and changes teacher subjects reported as requiring to address all student subjects' needs, were also coded by a second research assistant. The second research assistant was given a copy of the definitions of each interfering factor and each additional resource/change and asked to code each quote based on these definitions. Results of the second research assistant's coding of individual quotes were compared to the codings made jointly by the primary investigator and the research assistant who assisted with the qualitative analysis of teacher interview data. Inter-rater agreement rates were calculated for teacher-reported student needs, teacher-reported interventions, quality of teacher-reported interventions, factors that teachers reported as interfering with their ability to address the adaptive behavior needs of student subjects, and additional resources and changes teacher subjects reported as required to address all student subjects' needs, as well as an overall total. Inter-rater agreement estimates were calculated by dividing the total number of agreements by the total number of agreements plus disagreements. The average overall inter-rater agreement of coders on the ABPI following training on the instrument was 95.5% (range = 92.4% - 100.0%). Inter-rater agreement information for each specific category on the ABPI is presented in Table 16.

Table 16. Inter-rater agreement: ABPI data

	Number of Agreements	Number of Disagreements	Percent of Total Agreements
Teacher Identified Student Need	72	4	94.7
Teacher Identified Intervention	74	2	97.4
Intervention Quality	45	4	91.8
Teacher-Reported Interfering Factors	28	1	96.5
Teacher-Reported Solutions	13	0	100.0
Overall ABPI Inter-Rater Agreement	232	11	95.5

Congruence Ratings

The congruence between student need data and educational program data was coded by both the primary investigator and a research assistant. To determine inter-rater agreement, 22% (4/18) of student subject files were randomly selected using a random numbers table. Each student subject file was coded separately by the primary investigator and a research assistant. The percentage of inter-rater agreement was calculated for specific need congruence and general need congruence, as well as an overall total. Inter-rater agreement was calculated by dividing the total number of agreements by the total number of agreements plus disagreements. The average overall inter-rater agreement of coders on the congruence between student need data and educational program data was 92.9% (Range = 83.3% - 100.0%). Inter-rater agreement information for each congruence category is presented in Table 17.

Table 17. Inter-rater agreement: Congruence between student need data and educational program data

	Number of Agreements	Number of Disagreements	Percent of Total Agreements
Specific Need Congruence	52	3	94.5
General Need Congruence	14	2	87.5
Overall Congruence Inter-Rater Agreement	66	5	92.9

Descriptive Statistics

This section provides summaries of information collected for this study. Specifically, the data summarized below include student need information, IEP information, teacher-reported interventions, total ABOS data, ABOS opportunity data, and parent and teacher ABAS data.

Student Need Data

Review of Present Level of Educational Performance (PLEP) information, Comprehensive Test of Adaptive Behavior (CTAB) data, Scales of Independent Behavior-Revised (SIB-R) data, and teacher interview information, was used to identify the specific adaptive behavior needs of student subjects. Descriptive information is presented in this section regarding student needs identified from each of the four data sources, as well as overall student need identified through review of information from all four data sources. Comparison information regarding student needs identified from each of the four data sources is provided in Appendix X.

Present Level of Educational Performance (PLEP) data. PLEP data collected via review of students' IEPs indicated that student subjects averaged 4.50 specific adaptive behavior needs (SD = 1.29, Range = 3 – 8). The average number of specific adaptive behavior needs student subjects were identified as having varied across the four general areas of adaptive behavior. Specifically, student subjects had an average of .44 (SD = .70, Range = 0 - 2) specific independent functioning needs, 1.83 (SD = .98, Range = 0 - 3) specific functional academic needs, .44 (SD = .51, Range = 0 - 1) specific prevocational/vocational needs, and 1.78 (SD = .81, Range = 0 - 3) specific social/communication needs. In addition, PLEP information indicated that student subjects had, on average, .28 specific motor needs (SD = .46, Range = 0 - 1). Table 18 presents more specific information regarding student subjects' need(s) based on PLEP data. Information regarding the identified needs of student subjects is also presented in case study format in Appendix Y.

Comprehensive Test of Adaptive Behavior (CTAB) and Scales of Independent Behavior-Revised (SIB-R) data. Review of CTAB and SIB-R data collected via parent interviews indicated that student subjects averaged 6.72 specific adaptive behavior needs (SD = 3.27, Range = 2 - 12). CTAB and SIB-R data indicated that student subjects had an average

Table 18. Student PLEP needs

Adaptive Behavior Domains	Number of Students	Percent of Students
Independent Functioning	6	33.3
Eating	1	5.6
Toileting	1	5.6
Hygiene	0	0.0
Dressing	0	0.0
Domestic	0	0.0
Independence/ Mobility	6	33.3
Leisure	0	0.0
Functional Academics	16	88.9
Preacademics	8	44.4
Reading	9	50.0
Math	7	38.9
Writing	7	38.9
Money	1	5.6
Time	1	5.6
Prevocational	8	44.4
Prevocational	8	44.4
Vocational	0	0.0
Social/Communication	17	94.4
Challenging Behavior	6	33.3
Communication	12	66.7
Social Skills	14	77.8
Motor	5	27.8
Fine Motor	4	22.2
Gross Motor	1	5.6

of 2.05 specific independent functioning needs (SD = 1.30, Range = 0 - 5), 2.05 specific functional academics needs (SD = 1.83, Range = 0 - 4), and 2.61 specific social/communication needs (SD = .61, Range = 1 - 3). Table 19 presents more specific information regarding student need based on CTAB and SIB-R data. Information regarding the identified needs of student subjects is also presented in case study format in Appendix Y.

Teacher interview data. Teacher interview information indicated that student subjects averaged 10.83 specific adaptive behavior needs (SD = 3.70, Range = 5 - 17). Student subjects were found to have an average of 3.39 specific independent functioning needs (SD = 2.09, Range = 0 - 7), 3.94 specific functional academic needs (SD = 1.83, Range = 1 - 6), .94 specific prevocational/vocational needs (SD = .23, Range = 0 - 1), and 2.55 specific social/communication needs (SD = .61, Range = 1 - 3). In addition, teacher interview

Table 19. Student CTAB and SIB-R needs

Adaptive Behavior Domains	Number of Students	Percent of Students
Independent Functioning	11	61.1
Eating	3	16.7
Toileting	8	44.4
Hygiene	14	77.8
Dressing	3	16.7
Domestic	0	0.0
Independence/ Mobility	0	0.0
Leisure	8	44.4
Functional Academics	12	66.7
Preacademics	0	0.0
Reading	10	55.6
Math	9	50.0
Writing	0	0.0
Money	9	50.0
Time	9	50.0
Prevocational	0	0.0
Prevocational	0	0.0
Vocational	0	0.0
Social/Communication	18	100.0
Challenging Behavior	18	100.0
Communication	14	77.8
Social Skills	15	83.3
Motor	0	0.0
Fine Motor	0	0.0
Gross Motor	0	0.0

information indicated that student subjects averaged .44 specific motor needs (SD = .51, Range = 0 - 1). Table 20 presents more specific information regarding student need based on teacher interview data. Information regarding the identified needs of student subjects is also presented in case study format in Appendix Y.

Overall need data. Information from the four aforementioned data sources, indicated that 100% (N = 18) of student subjects had one or more needs in each of the general domains of adaptive behavior (i.e., independent functioning, functional academics, prevocational and vocational, social/communication). On average, the specific adaptive behavior needs of student subjects were identified based on information from 1.7 data sources (SD = .70, Range = 1 – 3). The number of specific adaptive behavior domains in which student subjects had need ranged from 8 to 17 (M = 12.94, SD = 3.35). Student subjects were found to have an

Table 20. Teacher-reported student needs

Adaptive Behavior Domains	Number of Students	Percent of Students
Independent Functioning	17	94.4
Eating	8	44.4
Toileting	8	44.4
Hygiene	7	38.9
Dressing	7	38.9
Domestic	7	38.9
Independence/ Mobility	14	77.8
Leisure	11	61.1
Functional Academics	18	100.0
Preacademics	8	44.4
Reading	14	77.8
Math	13	72.2
Writing	14	77.8
Money	11	61.1
Time	11	61.1
Prevocational	17	94.4
Prevocational	17	94.4
Vocational	0	0.0
Social/Communication	18	100.0
Challenging Behavior	13	72.2
Communication	16	88.9
Social Skills	17	94.4
Motor	8	44.4
Fine Motor	8	44.4
Gross Motor	0	0.0

average of 4.39 specific independent functioning needs (SD = 2.17, Range = 1 - 7), 4.61 specific functional academic needs (SD = 1.38, Range = 2 - 6), and 2.94 specific social/communication needs (SD = .23, Range = 2 - 3). All student subjects were identified as having need in the area of prevocational/vocational. In addition, student subjects averaged .50 specific motor needs (SD = .51, Range = 0 – 1). Table 21 provides additional information regarding the adaptive behavior needs of student subjects. Information regarding the identified needs of student subjects is also presented in case study format in Appendix Y.

IEP Information

This section provides information regarding the IEPs of student subjects. Specifically, data are presented regarding the individuals involved in the development of student subjects' IEPs, as well as the domains of IEP goals and objectives contained in these IEPs.

Table 21. Student overall needs

Adaptive Behavior Domains	Number of Students	Percent of Students
Independent Functioning	18	100.0
Eating	9	50.0
Toileting	11	61.1
Hygiene	15	83.3
Dressing	9	50.0
Domestic	7	38.9
Independence/ Mobility	15	83.3
Leisure	13	72.2
Functional Academics	18	100.0
Preacademics	11	61.1
Reading	18	100.0
Math	16	88.9
Writing	14	77.7
Money	12	66.7
Time	12	66.7
Prevocational	18	100.0
Prevocational	18	100.0
Vocational	0	0.0
Social/Communication	18	100.0
Challenging Behavior	18	100.0
Communication	17	94.4
Social Skills	18	100.0
Motor	9	50.0
Fine Motor	8	44.4
Gross Motor	1	5.6

Individuals involved in IEP development. Review of each student subject's IEP indicated that, on average, 6 individuals (range = 4 – 12) attended IEP meetings and were involved in the development of student subjects' IEPs. Parents were documented as participating in the development of IEPs for 88.9% of student subjects. School personnel who were most frequently involved in IEP development included special education teachers (88.9%), general education teachers (50.0%), school administrators (50.0%), and educational associates (33.3%). In addition, the most frequently involved special education support staff included speech-language pathologists (83.3%), educational consultants (61.1%), school psychologists (44.4%), and school social workers (33.3%). Table 22 delineates the number of cases in which the aforementioned individuals were involved in IEP development, as well as the relative involvement of other individuals.

Table 22. Individuals participating in IEP development

	Number of Cases	Percent of Cases
Autism Resource Team Member	2	11.1
Educational Associate	6	33.3
Educational Consultant	11	61.1
Parent	16	88.9
Extended Family Member	1	5.6
Occupational Therapist	2	11.1
Representative from Community Organization	1	5.6
School Administrator	9	50.0
School Nurse	3	16.7
School Psychologist	8	44.4
School Social Worker	6	33.3
Speech-Language Pathologist	15	83.3
Teacher-General Education (Current)	9	50.0
Teacher-General Education (Receiving)	2	11.1
Teacher-Special Education	16	88.9
Other	2	11.1

IEP goals and objectives. The IEPs of student subjects contained an average of 6.28 IEP goals (SD = 2.67, Range 2 - 13), of which 6.00 (SD = 2.68, Range 2 – 13) targeted specific areas of adaptive behavior. The specific adaptive behavior areas most frequently targeted by student subjects' IEP goals included social skills (83.3%), communication skills (66.7%), reading (55.6%), preacademics (50.0%), and prevocational skills (50.0%). The specific adaptive behavior areas targeted by student subjects' IEP goals least frequently included eating (5.6%), toileting (5.6%), challenging behavior (11.1%), time (11.1%), and money (16.7%). Table 23 contains additional information regarding the frequency with which IEP goals and objectives were written for student subjects in each of the specific areas of

Table 23. Student IEP goals and objectives

Adaptive Behavior Domains	Student IEP Goals		Student IEP Objectives	
	Number of Students	Percent of Students	Number of Students	Percent of Students
Independent Functioning	7	38.9	7	38.9
Eating	1	5.6	1	5.6
Toileting	1	5.6	1	5.6
Hygiene	0	0.0	0	0.0
Dressing	0	0.0	0	0.0
Domestic	0	0.0	0	0.0
Independence/Mobility	7	38.9	7	38.9
Leisure	0	0.0	0	0.0
Functional Academics	16	88.9	16	88.9
Preacademics	9	50.0	9	50.0
Reading	10	55.6	10	55.6
Math	6	33.3	6	33.3
Writing	7	38.9	7	38.9
Money	3	16.7	3	16.7
Time	2	11.1	2	11.1
Prevocational	9	50.0	9	50.0
Prevocational	9	50.0	9	50.0
Vocational	0	0.0	0	0.0
Social/Communication	17	94.4	17	94.4
Challenging Behavior	2	11.1	2	11.1
Communication	12	66.7	12	66.7
Social Skills	15	83.3	15	83.3
Motor	5	27.8	5	27.8
Fine Motor	4	22.2	4	22.2
Gross Motor	1	5.6	1	5.6

adaptive behavior. Information regarding the IEP goals written for student subjects is also presented in case study format in Appendix Y.

Teacher-Reported Interventions

This section presents information regarding the interventions reported by teacher subjects as being in place for student subjects at school. Specifically, data are presented regarding the domains of teacher-reported interventions, the quality of teacher-reported interventions, and teacher ratings regarding the difficulty of implementing interventions to address specific areas of student need.

Domains of teacher-reported interventions. Teacher interview information indicated that student subjects had school interventions in place that targeted an average of 11.33

specific areas of need (SD = 3.72, Range = 6 – 17). Of these interventions, an average of 10.89 specific areas of adaptive behavior need (SD = 3.74, Range = 5 – 17) were targeted in the educational programs of student subjects. Based on teacher interview information, interventions were in place for student subjects which targeted an average of 3.44 specific areas of independent functioning (SD = 2.09, Range = 0 - 7), 3.94 specific areas of functional academics (SD = 1.83, Range = 1 - 6), .94 specific areas of prevocational and vocational (SD = .23, Range = 1 - 0), and 2.55 specific areas of social/communication (SD = .61, Range = 1 - 3). In addition, teacher subjects reported that student subjects had interventions in place at school that targeted an average of .44 specific areas of motor need (SD = .51, Range = 0 – 1). Table 24 provides additional information regarding the interventions reported by teachers.

Table 24. Teacher-reported interventions

Adaptive Behavior Domains	Number of Students with Intervention	Percent of Students Intervention
Independent Functioning		
Eating	8	44.4
Toileting	8	44.4
Hygiene	7	38.9
Dressing	7	38.9
Domestic	7	38.9
Independence/Mobility	14	77.8
Leisure	11	61.1
Functional Academics		
Preacademics	8	44.4
Reading	14	77.8
Math	13	72.2
Writing	14	77.8
Money	11	61.1
Time	11	61.1
Prevocational		
Prevocational	17	94.4
Vocational	0	0.0
Social/Communication		
Challenging Behavior	13	72.2
Communication	16	88.9
Social Skills	17	94.4
Motor		
Fine Motor	8	44.4
Gross Motor	0	0.0

Information regarding the teacher-reported interventions identified for student subject is also presented in case study format in Appendix Y.

Quality of teacher-reported interventions. Teacher-reported interventions ranged in quality from 1 (low quality) to 5 (high quality) (see Appendix V for intervention quality ratings). The median quality rating of all teacher-reported interventions (N = 204) was 4.0 (M = 3.52, SD = 1.27) and the median quality of all teacher-reported adaptive behavior interventions (N = 196) was 4.0 (M = 3.53, SD = 1.21). These results indicate that, on average, the interventions described by teacher subjects as being in place for student subjects were relatively high quality. Specifically, the interventions described by teacher subjects, on average, included at least general instructional strategies and/or reinforcement strategies, which were implemented systematically (on a consistent basis). Overall, 63.2% (n = 129) of all teacher-reported interventions and 63.3% (n = 124) of all teacher-reported adaptive behavior interventions were high quality (i.e., received a rating of 4 or 5). These results were also consistently found for teacher-reported interventions across the four general areas of adaptive behavior. Specifically, 53.2% (n = 33) of independent functioning interventions, 64.8% (n = 46) of functional academic interventions, 52.9% (n = 9) of prevocational/vocational interventions, and 78.3% (n = 36) of social/communication interventions were rated as high quality. In addition, 62.5% (n = 5) of motor interventions were high quality. Table 25 provides additional information regarding the quality of teacher-reported interventions targeting specific adaptive behavior needs. Table 26 presents information regarding the percentage of high quality (i.e., rating of 4 or 5) versus low quality (i.e., rating of 1, 2, or 3) teacher-reported interventions.

Teacher ratings of intervention difficulty. During ABPI interviews, teachers were asked to rate the relative ease/difficulty of addressing student need(s) in each specific area of adaptive behavior. Ratings ranged from 1 (very easy) to 6 (very difficult) (see Appendix L for information regarding the ABPI difficulty ratings). The median rating across all specific areas of adaptive behavior was 3.0 (M = 3.35, SD = 1.44, Range = 1 – 6). This result indicates that, on average, teacher subjects viewed addressing the adaptive behavior needs of student subjects as somewhat easy. However, teachers' views regarding the difficulty of addressing the needs of student subjects varied significantly across both general and specific areas of

Table 25. Intervention quality ratings

Intervention Domains	Number of Students with Intervention	Percent of Students with Intervention	Median Intervention Quality Rating	Range of Intervention Quality Ratings
Independent Functioning	16	88.9	4.0	1 – 5
Eating	8	44.4	3.0	1 – 5
Toileting	8	44.4	3.0	1 – 4
Hygiene	7	38.9	3.0	1 – 4
Dressing	7	38.9	4.0	1 – 4
Domestic	7	38.9	4.0	1 – 5
Independence/Mobility	14	77.8	4.0	2 – 5
Leisure	11	61.1	3.0	1 – 4
Functional Academics	18	100.0	4.0	1 – 5
Preacademics	8	44.4	4.0	1 – 5
Reading	14	77.8	4.0	3 – 5
Math	13	72.2	4.0	2 – 5
Writing	14	77.8	4.0	3 – 5
Money	11	61.1	4.0	1 – 5
Time	11	61.1	1.0	1 – 4
Prevocational	17	94.4	4.0	1 – 5
Prevocational	17	94.4	4.0	1 – 5
Vocational	0	0.0		
Social/Communication	18	100.0	4.0	1 – 5
Challenging Behavior	13	72.2	4.0	1 – 5
Communication	16	88.9	4.5	3 – 5
Social Skills	17	77.8	4.0	3 – 5
Motor	8	44.4	4.0	2 – 5
Fine Motor	8	44.4	4.0	1 – 5
Gross Motor	0	0.0		

Table 26. Students with high quality and low quality interventions

Intervention Domains	Number of Students with High Quality Intervention	Percent of Students with High Quality Intervention	Number of Students with Low Quality Intervention	Percent of Students with Low Quality Intervention
Independent Functioning				
Eating	3	37.5	5	62.5
Toileting	2	25.0	6	75.0
Hygiene	3	42.9	4	57.1
Dressing	5	71.4	2	28.6
Domestic	5	71.4	2	28.6
Independence/Mobility	10	71.4	4	28.6
Leisure	5	45.5	6	54.5
Functional Academics				
Preacademics	5	62.5	3	37.5
Reading	13	92.9	1	7.1
Math	10	76.9	3	23.1
Writing	9	64.3	5	35.7
Money	7	63.6	4	36.4
Time	2	18.2	9	81.8
Prevocational				
Prevocational	9	52.9	8	47.1
Vocational	0	0.0	0	0.0
Social/Communication				
Challenging Behavior	9	69.2	4	30.8
Communication	14	87.5	2	12.5
Social Skills	13	76.5	4	23.5
Motor				
Fine Motor	5	75.0	3	37.5
Gross Motor	0	0.0	0	0.0

adaptive behavior need. For example, teacher subjects, on average, viewed the prevocational/vocational (Mdn = 4.0, M = 3.44, SD = 1.15, Range = 2 – 6) and social/communication (Mdn = 4.0, M = 3.78, SD = 1.31, Range = 1 – 6) needs of student subjects as somewhat difficult to address. Conversely, teacher subjects, on average, viewed the independent functioning (Mdn = 3.0, M = 3.01, SD = 1.47, Range = 1 – 6) and functional academic (Mdn = 3.0, M = 3.44, SD = 1.46, Range = 1 – 6) needs of student subjects as somewhat easy to address. On average, teachers viewed student needs in the areas of leisure, money, prevocational, social skills, and challenging behavior as the most difficult to address.

In contrast, student needs in the areas of eating, toileting, personal hygiene and grooming, and dressing were reported by teacher subjects, on average, as the easiest to address. Table 27 provides additional information regarding teacher subject ratings regarding the difficulty of addressing student need(s) in each of the specific areas of adaptive behavior.

Table 27. Teacher intervention difficulty ratings

Intervention Domains	Number of Teachers	Percent of Teachers	Median Difficulty Rating	Mean Difficulty Rating	Standard Deviation	Range of Difficulty Ratings
Independent Functioning						
Eating	13	72.2	2.0	2.92	1.81	1 - 6
Toileting	12	66.7	2.5	2.50	1.51	1 - 6
Hygiene	11	61.1	3.0	2.73	1.68	1 - 6
Dressing	10	55.5	3.0	2.60	1.35	1 - 5
Domestic	6	33.3	3.5	3.17	1.47	1 - 5
Independence/Mobility	14	77.8	3.0	3.28	1.33	1 - 6
Leisure	13	72.2	4.0	3.77	1.01	2 - 5
Functional Academics						
Preacademics	9	50.0	2.0	3.11	1.45	2 - 6
Reading	14	77.8	3.5	3.50	1.45	2 - 6
Math	13	72.2	3.0	3.61	1.66	1 - 6
Writing	13	72.2	3.0	3.54	1.51	1 - 6
Money	11	61.1	4.0	3.73	1.49	2 - 6
Time	12	66.7	3.0	3.08	1.38	1 - 6
Prevocational						
Prevocational	16	88.9	4.0	3.44	1.15	2 - 5
Vocational	0	0.0				
Social/Communication						
Challenging Behavior	14	77.8	4.0	4.21	1.25	2 - 6
Communication	15	83.3	3.0	3.60	1.45	1 - 6
Social Skills	16	88.9	4.0	3.56	1.21	1 - 5
Motor						
Fine Motor	6	33.3	3.0	2.83	0.98	1 - 4
Gross Motor	0	0.0				

Total ABOS

An average of 717 intervals (SD = 10.14, Range = 694 – 732), or 5.97 hours, of ABOS data were collected during classroom observations of each student subject. This section provides summary information regarding all ABOS data collected for this study. Specifically, descriptive information is presented regarding instructional organization data,

student engagement data, primary interactor data, adult/peer instruction-related behavior data, and primary skill data.

Instructional organization data. During ABOS observations, the type of instructional organization strategies implemented for student subjects were recorded (see Appendix K for definitions regarding instructional organization strategies). On average, the instructional organization categories recorded most frequently during observations of student subjects included other organizational strategies (e.g., computer, video, small group, large group) (M = 35.62%, SD = 19.94), no instructional strategy (M = 25.32%, SD = 12.46), one-on-one (M = 19.50%, SD = 14.08), and physical/visual structure (M = 13.78%, SD = 23.01). Table 28 provides additional information regarding ABOS data regarding the instructional organization strategies observed for student subjects.

Table 28. Total instructional organization data

Instructional Organization	Number of Students	Percent of Students	Mean Percentage of School Day (Total Sample)	Percent of School Day Range (Total Sample)
Other Instructional Strategy	17	94.4	35.62	00.00 – 66.11
No Instructional Strategy	18	100.0	25.32	03.56 – 44.44
One-On-One Instruction	18	100.0	19.50	00.56 – 48.47
Physical/Visual Structure	11	61.1	13.78	00.00 – 73.37
Peer Tutoring/Mediation	16	88.9	4.99	00.00 – 17.65
Communication System	4	22.2	0.79	00.00 – 10.69

Student engagement data. During ABOS observations, student subjects' engagement during the school day was recorded (see Appendix K for definitions related to student engagement). On average, student subjects were observed to spend 82.26% of the day engaged (SD = 7.58, Range = 70.97% - 93.61%) and 17.74% of the day not engaged (SD = 7.58, Range = 6.39% - 29.03%). Table 29 provides additional information regarding student subject engagement during ABOS observations.

Table 29. Total student engagement data

Student Engagement	Number of Students	Percent of Students	Mean Percentage of School Day (Total Sample)	Percent of School Day Range (Total Sample)
Responding	18	100.0	68.16	50.77 – 84.03
Student Not Engaged	18	100.0	17.74	06.39 – 29.03
Attending	16	88.9	14.10	00.00 – 38.19

Primary interactor data. The primary interactor, or the individual who held primary responsibility for intervening or interacting with a student during a given interval, was recorded during ABOS observations (see Appendix K for definitions related to primary interactor). On average, the primary interactor categories most frequently observed for student subjects included the classroom teacher ($\underline{M}$ = 35.19%, $\underline{SD}$ = 19.04), an educational associate ($\underline{M}$ = 28.13%, $\underline{SD}$ = 22.78), no staff ($\underline{M}$ = 26.00%, $\underline{SD}$ = 18.26), and a peer ($\underline{M}$ = 7.00%, $\underline{SD}$ = 7.55). Additional information regarding the primary interactor categories observed for student subjects is presented in Table 30.

Table 30. Total primary interactor data

Primary Interactor	Number of Students	Percent of Students	Mean Percentage of School Day (Total Sample)	Percent of School Day Range (Total Sample)
Classroom Teacher	18	100.0	35.19	05.74 – 67.50
Educational Associate	16	88.9	28.13	00.00 – 78.47
No Staff	8	44.4	25.99	00.31 – 58.89
Peer	16	88.9	6.99	00.00 – 22.64
Ancillary	8	44.4	1.61	00.00 – 09.17
Other Staff	18	100.0	0.75	00.00 – 03.33
Student Teacher	2	11.1	0.75	00.00 – 07.92
Substitute Teacher	2	11.1	0.35	00.00 – 04.44
Volunteer	1	5.6	0.24	00.00 – 04.31

Adult/peer instruction-related behavior data. During ABOS observations, the adult/peer instruction-related behavior used with the student subject during each interval was recorded (see Appendix K for definitions regarding adult/peer instruction-related behavior). On average, adult/peer instruction related-behavior categories most frequently recorded during observations of student subjects included no instruction-related behavior (M = 43.94%, SD = 16.65), multiple modality instruction (M = 34.03%, SD = 16.43), and verbal instruction (M = 14.96%, SD = 9.73). Table 31 presents additional information regarding the adult/peer instruction-related behaviors used with student subjects.

Table 31. Total adult/peer instruction-related behavior data

Adult/Peer Instruction-Related Behavior	Number of Students	Percent of Students	Mean Percentage of School Day (Total Sample)	Percent of School Day Range (Total Sample)
None	18	100.0	43.95	04.18 – 65.14
Multiple Modality	18	100.0	33.95	07.64 – 71.21
Verbal Instruction	18	100.0	15.01	03.67 – 40.39
Modeling	13	72.2	1.93	00.00 – 06.81
Consequate	11	61.1	1.75	00.00 – 12.78
Physical Assistance	14	77.8	1.43	00.00 – 06.53
Other	12	66.7	1.30	00.00 – 04.86
Instruct/Prompt Peer	9	50.0	0.68	00.00 – 03.87

Primary skill data. During ABOS observations, the primary skill areas targeted for the student subject during each interval were recorded (see Appendix K for definitions regarding primary skill areas). On average, 39.31% (SD = 14.65) of student subjects' school day was focused on functional academic skills, 36.60% (SD = 14.29) on independent functioning skills, 13.49% (SD = 10.49) on non-adaptive behavior skills (e.g., music), 7.15% (SD = 8.18) on social/communication skills, 2.26% (SD = 4.43) on prevocational/vocational skills, and 1.19% (SD = 2.74) on no specific skills. On average, the primary skill areas targeted during the greatest percentage of student subjects' school days included leisure

(M = 14.06%, SD = 8.55), preacademics (M = 13.10%, SD = 13.19), independence/mobility (M = 12.98%, SD = 6.42), reading (M = 10.33%, SD = 8.39), and writing (M = 6.58%, SD = 8.98). Additional information is provided in Table 32 regarding the primary skills targeted at school during observations of student subjects.

Table 32. Total primary skill data

Primary Skill Areas	Number of Students	Percent of Students	Mean Percentage of Student Day (Total Sample)	Range Percentage of Student Day (Total Sample)
Independent Functioning	18	100.0	36.60	08.67 – 65.83
Eating	17	94.4	5.91	00.00 – 14.03
Toileting	14	77.8	0.62	00.00 – 02.08
Hygiene	14	77.8	0.52	00.00 – 01.94
Dressing	11	61.1	0.95	00.00 – 05.10
Domestic	9	50.0	1.56	00.00 – 18.33
Independence/Mobility	18	100.0	12.98	03.99 – 31.39
Leisure	18	100.0	14.06	02.78 – 37.80
Functional Academics	18	100.0	39.31	12.50 – 61.61
Preacademics	16	88.9	13.10	00.00 – 47.64
Reading	16	88.9	10.34	00.00 – 25.70
Math	13	72.2	5.56	00.00 – 15.28
Writing	12	66.7	6.58	00.00 – 33.89
Money	8	44.4	1.80	00.00 – 12.07
Time	12	66.7	1.93	00.00 – 10.83
Prevocational	6	33.3	2.27	00.00 – 13.61
Prevocational	6	33.3	2.27	00.00 – 13.61
Vocational	0	0.0	0.00	00.00 – 00.00
Social/Communication	15	83.3	7.15	00.00 – 29.26
Communication	8	44.4	1.62	00.00 – 05.42
Social Skills	13	72.2	5.53	00.00 – 24.77
Other Skill Activities	17	94.4	13.49	00.00 – 35.28
No Skill	8	44.4	1.19	00.00 – 10.56

ABOS Opportunity Data

In addition to summarizing ABOS data by category, these data were reviewed by interval and summarized to reflect the percentage of time that student subjects had the opportunity to engage in primary skill activities (see Appendix U for ABOS Opportunity Decision Making Guide). Opportunity data reflect attempts that were made to structure or

organize the learning environment and/or intervene with the student in order to facilitate student learning in a primary skill area. Overall, student subjects were provided with the opportunity to engage adaptive behavior skill activities an average of 61.07% of the school day (SD = 18.26). On average, 17.15% (SD = 13.98) of student subjects' school day involved opportunities to engage in independent functioning activities, 35.67% (SD = 13.26) involved opportunities to engage in functional academic activities, 1.53% (SD = 3.44) involved opportunities to engage in prevocational/vocational activities, and 6.71% (SD = 8.40) involved opportunities to engage in social/communication activities. The primary skill areas in which student subjects most frequently had the opportunity to engage included preacademics (M = 11.95%, SD = 11.93), reading (M = 9.76%, SD = 8.05), independence/mobility (M = 7.89%, SD = 4.90), math (M = 5.16%, SD = 4.98), social skills, (M = 5.11%, SD = 7.42), and writing (M = 5.09%, SD = 5.91). Additional information is provided in Table 33.

Comparisons between total ABOS data and opportunity data indicated that while student subjects were physically present during a wide variety of specific adaptive behavior skill activities, purposeful instruction or intervention did not always occur during those activities. Overall, when students were observed to be physically present during adaptive behavior activities, instruction and/or intervention was occurring, on average, 70.69% of the time (SD = 14.58, Range = 44.28% - 96.42%). However, this finding varied significantly across the four general areas of adaptive behavior. For example, purposeful instruction and/or intervention was observed to occur, on average, only 44.04% (SD = 22.38) of the time during independent functioning activities. In comparison, attempts had been made to structure or organize learning environments and/or intervene with students an average of 92.43% (SD = 7.70) of the time during functional academic activities, 90.39% (SD = 20.32) of the time during prevocational/vocational activities, and 93.8% (SD = 35.96) of the time during social/communication activities. Specific adaptive behavior activities during which purposeful instruction and/or intervention occurred, on average, the least included leisure, toileting, eating, and personal hygiene/grooming. Conversely, specific adaptive behavior activities during which purposeful instruction and/or intervention occurred the most included communication, money, reading, math, writing, time, and preacademics. Additional

Table 33. Instructional opportunity data

Primary Skill Areas	Number of Students	Percent of Students	Mean Percentage of Student Day (Total Sample)	Range Percentage of Student Day (Total Sample)
Independent Functioning	18	100.0	17.15	03.06 – 48.47
Eating	14	77.8	2.36	00.00 – 10.28
Toileting	8	44.4	0.24	00.00 – 01.25
Hygiene	11	61.1	0.26	00.00 – 00.83
Dressing	11	61.1	0.71	00.00 – 05.10
Domestic	7	38.9	1.23	00.00 – 16.11
Independence/Mobility	18	100.0	7.89	02.39 – 22.08
Leisure	13	72.2	4.45	00.00 – 28.71
Functional Academics	18	100.0	35.67	12.22 – 61.30
Preacademics	16	88.9	11.95	00.00 – 42.78
Reading	16	88.9	9.76	00.00 – 25.70
Math	13	72.2	5.16	00.00 – 15.28
Writing	12	66.7	5.09	00.00 – 16.11
Money	7	38.9	1.79	00.00 – 12.07
Time	12	66.7	1.92	00.00 – 10.83
Prevocational	5	27.8	1.53	00.00 – 12.92
Prevocational	5	27.8	1.53	00.00 – 12.92
Vocational	0	0.0	0.00	00.00 – 00.00
Social/Communication	13	72.2	6.71	00.00 – 29.26
Communication	8	44.4	1.60	00.00 – 05.42
Social Skills	11	61.1	5.11	00.00 – 24.77
Other Skill Activities	16	88.9	12.40	00.00 –35.28
No Instructional Activity	18	100.0	21.21	00.15 – 42.92
No Instructional Activity and Student Not Engaged	18	100.0	5.32	00.97 – 12.50

information is provided in Table 34 regarding differences between total ABOS data and instructional opportunity data related to each primary skill area.

ABAS Data

Information is presented in this section regarding ABAS data collected from parent and teacher subjects. Specifically, information is provided regarding parent and teacher rankings of the relative amount of emphasis that should be placed on each general adaptive behavior area in student subjects' educational programs, ratings of the importance of each general adaptive behavior areas for student subjects, and rankings regarding the relative

Table 34. Differences between total ABOS data and instructional opportunity data

Primary Skill Areas	Number of Students with Opportunity	Percent of Students Present During Activities	Mean Percent of Activity Time in Which Instruction and/or Intervention Occurred	Range Percentage of Activity Time in Which Instruction and/or Intervention Occurred
Independent Functioning	18	100.0	44.04	08.63 – 79.64
Eating	14	82.3	37.98	00.00 – 100.0
Toileting	8	57.1	37.21	00.00 – 100.0
Hygiene	11	78.6	48.28	00.00 – 100.0
Dressing	11	100.0	72.67	10.00 – 100.0
Domestic	7	77.8	74.60	00.00 – 100.0
Independence/Mobility	18	100.0	64.37	20.59 – 100.0
Leisure	13	72.2	23.23	00.00 – 95.45
Functional Academics	18	100.0	92.43	73.23 – 100.0
Preacademics	16	100.0	89.71	50.00 – 100.0
Reading	16	100.0	93.73	65.91 – 100.0
Math	13	100.0	90.79	26.32 – 100.0
Writing	12	100.0	90.59	71.43 – 100.0
Money	7	87.5	99.05	93.33 – 100.0
Time	12	100.0	97.39	75.00 – 100.0
Prevocational	5	83.3	90.39	54.08 – 100.0
Prevocational	5	83.3	90.39	54.08 – 100.0
Vocational	0	0.0	0.00	
Social/Communication	13	100.0	82.01	00.00 – 100.0
Communication	8	100.0	99.17	93.33 – 100.0
Social Skills	11	84.6	79.54	00.00 – 100.0

appropriateness of addressing specific adaptive behavior needs in specific settings (i.e., home, school, community).

Adaptive behavior skills ranking. The ABAS asked each parent subject and teacher subject to rank order the general area of adaptive behavior (i.e., independent functioning, functional academics, prevocational/vocational, social/communication) in terms of the relative amount of emphasis that should be placed on each area in student subject's educational program (see Appendices K and L for parent and teacher versions of the ABAS). Rankings on the ABAS ranged from 1 (most emphasis) to 4 (least emphasis). In the area of independent functioning, the median ranking provided by parents was 2.5 ($\underline{M}$ = 2.55, SD = 1.25, Range = 1 – 4) and the median ranking provided by teachers was 3.0 ($\underline{M}$ = 2.72, $\underline{SD}$ = 1.32, Range = 1 – 4). In the area of functional academics, the median ranking provided by

parents was 1.0 (M = 1.83, SD = 1.04, Range = 1 – 4) and the median ranking provided by teachers was 2.5 (M = 2.28, SD = 1.07, Range = 1 – 4). In the area of prevocational/vocational, the median ranking provided by parents was 3.0 (M = 3.05, SD = 1.00, Range = 1 – 4) and the median ranking provided by teachers was 3.0 (M = 2.72, SD = 1.13, Range = 1 – 4). In the area of social/communication, the median ranking provided by parents was 2.5 (M = 2.55, SD = 0.92, Range = 1 – 4) and the median ranking provided by teachers was 2.0 (M = 2.28, SD = 0.96, Range = 1 – 4). Overall, these results indicate that parents and teachers, on average, hold somewhat different views regarding the amount of emphasis that should be placed on various adaptive behavior areas in the educational programs of students with autism. For example, results indicate that parent subjects, on average, believed that functional academic skills should receive the most emphasis in the educational programs of student subjects. In comparison, teacher subjects, on average, reported that social/communication skills should receive the most relative amount of emphasis. Additional information regarding parent and teacher ABAS rankings regarding each general area of adaptive behavior are presented in Table 35.

Table 35. Parent and teacher ABAS rankings

Adaptive Behavior Domain	Most Emphasis 1	Second Most Emphasis 2	Third Most Emphasis 3	Least Emphasis 4
Parent Rankings				
Independent Functioning	6	4	2	6
Functional Academics	10	2	5	1
Prevocational/Vocational	1	5	5	7
Social/Communication	2	6	6	4
Teacher Rankings				
Independent Functioning	5	3	2	8
Functional Academics	6	3	7	2
Prevocational/Vocational	3	5	4	6
Social/Communication	4	7	5	2

Adaptive behavior skills rating. The ABAS also asked parent and teacher subjects to rate each general area of adaptive behavior (i.e., independent functioning, functional academics, prevocational/vocational, social/communication) in terms of how important it was to address that area of adaptive behavior in the student subject's educational program (see Appendices K and L for parent and teacher versions of the ABAS). Ratings on the ABAS ranged from 1 (very unimportant) to 6 (very important). In the area of independent functioning, the median rating provided by parents was 6.0 ($\underline{M}$ = 5.33, SD = 0.84, Range = 4 - 6) and the median rating provided by teachers was 5.0 ($\underline{M}$ = 4.61, $\underline{SD}$ = 1.50, Range = 1 – 6). In the area of functional academics, the median rating provided by parents was 6.0 ($\underline{M}$ = 5.72, $\underline{SD}$ = 0.84, Range = 5 - 6) and the median rating provided by teachers was 5.0 ($\underline{M}$ = 5.11, $\underline{SD}$ = 0.76, Range = 4 - 6). In the area of prevocational and vocational, the median rating provided by parents was 5.5 ($\underline{M}$ = 5.39, $\underline{SD}$ = 0.70, Range = 4 - 6) and the median rating provided by teachers was 5.0 ($\underline{M}$ = 5.22, $\underline{SD}$ = 0.88, Range = 3 - 6). In the area of social/communication, the median rating provided by parents was 6.0 ($\underline{M}$ = 5.78, $\underline{SD}$ = 0.43, Range = 5 - 6) and the median rating provided by teachers was 6.0 ($\underline{M}$ = 5.67, $\underline{SD}$ = 0.59, Range = 4 - 6). Overall, these results indicate that both teachers and parents, on average, believe that it is very important to address all four general areas of adaptive behavior in the educational programs of student with autism. Overall, these results indicate that parents and teachers hold relatively similar beliefs regarding the importance of addressing various adaptive behavior skills in the educational programs of student subjects. In addition, results suggest that when general adaptive behavior domains are viewed in isolation, rather than relative to one another, both parents and teachers recognize the importance of addressing all four general areas of adaptive behavior in students' educational programs.

Intervention setting ranking data. The ABAS also asked each parent subject and teacher subject to rank each specific area of adaptive behavior (see Appendix H for definitions for specific areas of adaptive behavior) in terms of the relative appropriateness of teaching that skill in various settings (see Appendices K and F for parent and teacher versions of the ABAS). For each specific area of adaptive behavior, respondents were asked to rank the relative appropriateness of teaching the skill in home, school, and community settings. Rankings ranged from 1 (most appropriate) to 3 (least appropriate). In the area of

independent functioning, parent subjects, on average, ranked home as the most appropriate setting (Mdn = 1.00, M = 1.35, SD = 0.70, Range = 1 – 3), school as the second most appropriate setting (Mdn = 2.0, M = 1.86, SD = 0.47, Range = 1 – 3), and community as the third most appropriate setting (Mdn = 3.0, M = 2.67, SD = 0.60, Range = 1 – 3). Teacher subjects, on average, ranked home (Mdn = 2.0, M = 1.70, SD = 0.77, Range = 1 – 3), school (Mdn = 2.0, M = 2.28, SD = 0.57, Range = 1 – 3), and community (Mdn = 2.0, M = 2.11, SD = 0.91, Range = 1 – 3) as all moderately appropriate settings for teaching independent functioning skills. In the area of functional academics, parent subjects, on average, ranked school as the most appropriate setting (Mdn = 1.00, M = 1.25, SD = 0.46, Range = 1 – 3), home as the second most appropriate setting (Mdn = 2.0, M = 1.93, SD = 0.63, Range = 1 – 3), and community as the third most appropriate setting (Mdn = 3.0, M = 2.72, SD = 0.57, Range = 1 – 3). Teacher subjects, on average, made similar rankings, with school as the most appropriate setting (Mdn = 1.00, M = 1.22, SD = 0.44, Range = 1 – 3), home as the second most appropriate setting (Mdn = 2.0, M = 2.0, SD = 0.56, Range = 1 – 3), and community as the third most appropriate setting (Mdn = 3.0, M = 2.75, SD = 0.56, Range = 1 – 3). In the area of prevocational/vocational, parent subjects, on average, ranked school as the most appropriate setting (Mdn = 1.0, M = 1.33, SD = 0.58, Range = 1 – 3). Parent subjects, on average, ranked both home (Mdn = 2.0, M = 2.25, SD = 0.72, Range = 1 – 3) and community (Mdn = 2.0, M = 2.32, SD = 0.75, Range = 1 – 3) as moderately appropriate settings for teaching prevocational/vocational skills. In the area of prevocational/vocational, teacher subjects, on average, ranked school as the most appropriate setting (Mdn = 1.0, M = 1.44, SD = 0.51, Range = 1 – 2). Teacher subjects, on average, ranked both home (Mdn = 2.5, M = 2.28, SD = 0.83, Range = 1 – 3) and community (Mdn = 2.5, M = 2.28, SD = 0.83, Range = 1 – 3) as somewhat appropriate for teaching prevocational/vocational skills. In the area of social/communication, parent subjects, on average, ranked both home (Mdn = 1.5, M = 1.72, SD = 0.81, Range = 1 – 3) and school (Mdn = 2.0, M = 1.64, SD = 0.59, Range = 1 – 3) as moderately appropriate settings to teach social/communication skills. Parents subjects, on average, ranked community as the least appropriate setting (Mdn = 3.0, M = 2.59, SD = 0.66, Range = 1 – 3). In the area of social and communication, teacher subjects, on average, ranked home as the most appropriate setting (Mdn = 1.0, M = 1.53, SD = 0.61, Range = 1 – 3).

Teacher subjects, on average, ranked both school (Mdn = 2.0, M = 2.05, SD = 0.75, Range = 1 – 3) and community (Mdn = 2.5, M = 2.25, SD = 0.84, Range = 1 – 3) as moderately appropriate settings for teaching social/communication skills. Overall, these results indicate that parents and teachers, on average, have relatively similar beliefs regarding the most appropriate settings to teach specific adaptive behaviors to students with autism. However, parent subjects were more likely than teacher subjects, on average, to rank school as the most appropriate setting to teach specific independent functioning skills (i.e., eating, toileting, personal hygiene/grooming, dressing, domestic) to students with autism. Additional information regarding parent and teacher rankings on the ABAS regarding the most appropriate settings for teaching specific adaptive behavior skills is presented in Table 36 and Table 37, respectively.

Table 36. Parent ratings of the most appropriate place to implement interventions

Adaptive Behavior Domains	Home		School		Community	
	Number of Parents	Percent of Parents	Number of Parents	Percent of Parents	Number of Parents	Percent of Parents
Independent Functioning						
Eating	16	88.9	1	5.6	1	5.6
Toileting	16	88.9	2	11.1	0	0.0
Hygiene	15	83.3	3	16.7	0	0.0
Dressing	17	94.4	1	5.6	0	0.0
Domestic	16	88.9	2	11.1	0	0.0
Independence/ Mobility	8	44.4	6	33.3	4	22.2
Leisure	14	77.8	2	11.1	2	11.1
Functional Academics						
Preacademics	3	16.7	15	83.3	0	0.0
Reading	3	16.7	15	83.3	0	0.0
Math	2	11.1	16	88.9	0	0.0
Writing	1	5.6	17	94.4	0	0.0
Money	8	44.4	8	44.4	2	11.1
Time	7	38.9	11	61.1	0	0.0
Prevocational						
Prevocational	3	16.7	12	66.7	3	16.7
Vocational	3	16.7	12	66.7	3	16.7
Social/Communication						
Communication	10	55.6	7	38.9	1	5.6
Social Skills	8	44.4	8	44.4	2	11.1

Table 37. Teacher ratings of the most appropriate place to implement interventions

Adaptive Behavior Domains	Home		School		Community	
	Number of Teachers	Percent of Teachers	Number of Teachers	Percent of Teachers	Number of Teachers	Percent of Teachers
Independent Functioning						
Eating	18	100.0	0	0.0	0	0.0
Toileting	18	100.0	0	0.0	0	0.0
Hygiene	18	100.0	0	0.0	0	0.0
Dressing	18	100.0	0	0.0	0	0.0
Domestic	18	100.0	0	0.0	0	0.0
Independence/ Mobility	5	27.8	3	16.7	10	55.6
Leisure	14	77.8	3	16.7	1	5.6
Functional Academics						
Preacademics	2	11.1	16	88.9	0	0.0
Reading	2	11.1	16	88.9	0	0.0
Math	1	5.6	16	88.9	1	5.6
Writing	1	5.6	17	94.4	0	0.0
Money	4	22.2	10	55.6	4	22.2
Time	7	38.9	10	55.6	1	5.6
Prevocational						
Prevocational	4	22.2	10	55.6	4	22.2
Vocational	4	22.2	10	55.6	4	22.2
Social/Communication						
Communication	9	50.0	9	50.0	0	0.0
Social Skills	8	44.4	10	55.6	0	0.0

Research Question #1a: Do Educational Programs Address the Adaptive Behavior Needs of Students with Autism?

This section presents the results of statistical analyses used to answer research question #1a, *"To what extent do students with autism who have adaptive behavior need have an IEP goal(s) and/or a specific classroom intervention addressing that need?"* Specifically, data are presented regarding specific need congruence ratings and the percentage of student subjects who were found to have specific needs addressed. In addition, information is presented regarding general need congruence and the percentage of student subjects who had the majority of their needs within each general area of adaptive behavior addressed.

Specific Need Congruence

This section presents information regarding the results of analyses conducted to determine the relationship between the specific adaptive behavior needs of student subjects and their educational programs. Specifically, information is provided regarding specific need congruence ratings, as well as the percentage of student subjects whose need(s) within each specific area of adaptive behavior were addressed within their educational program.

Specific need congruence ratings. For each area in which student subjects had an identified need(s), specific need congruence was determined by answering the question "When a student has an identified need in a specific adaptive behavior area, is there an IEP goal and/or a quality intervention in place to address that need specifically?" Five ratings of specific need congruence were used to answer this question (see Appendix W for specific need congruence ratings and decision making steps for coding specific need congruence). The median specific need congruence rating across all student subject needs was 4.0 ($\underline{M}$ = 3.53, $\underline{SD}$ = 1.26, Range = 1 – 5) and across all student subject adaptive behavior needs was 4.0 ($\underline{M}$ = 3.52, $\underline{SD}$ = 1.27, Range = 1 – 5). In general, when a student with autism has need, that need is typically addressed within his/her educational program by either an IEP goal or a quality intervention. Information regarding specific need congruence ratings for student subjects with adaptive behavior need(s) is presented in Table 38. In addition, information regarding whether or not the specific adaptive behavior needs of student subjects were addressed within their educational programs is also presented in case study format in Appendix Y.

Percentages. Specific need congruence data were used to divide student subjects into "need addressed" and "need not addressed" groups for each specific area of adaptive behavior. Specific need congruence ratings of 4 or 5 indicated that a student's specific need was addressed within his/her educational program, while ratings of 1, 2, or 3 indicated that a specific need was not addressed. To calculate the percentage of students whose needs were addressed, the total number of students with a specific adaptive behavior need that was found to be addressed by an IEP goal and/or an intervention (i.e., specific need congruence rated 4 or 5) was divided by the total number of students with that specific adaptive behavior need and multiplied by 100. Similar procedures were used to calculate the percentage of student

Table 38. Specific need congruence ratings

Intervention Domains	Number of Students with Identified Need	Percent of Students (Total Sample)	Median Specific Need Congruence Rating	Range of Specific Need Congruence Ratings
Independent Functioning				
Eating	9	50.0	3.0	1 - 4
Toileting	11	61.1	3.0	1 - 4
Hygiene	15	83.3	1.0	1 - 4
Dressing	9	50.0	4.0	1 - 4
Domestic	7	38.9	4.0	2 - 4
Independence/Mobility	15	83.3	4.0	3 - 5
Leisure	13	72.2	3.0	1 - 4
Functional Academics				
Preacademics	11	61.1	4.0	2 - 5
Reading	18	100.0	5.0	1 - 5
Math	16	88.9	4.0	1 - 5
Writing	14	77.8	4.0	3 - 5
Money	12	66.7	4.0	1 - 5
Time	12	66.7	2.0	1 - 5
Prevocational				
Prevocational	18	100.0	4.0	2 - 5
Vocational	0	0.0		
Social/Communication				
Challenging Behavior	18	100.0	3.5	1 - 4
Communication	17	94.4	5.0	1 - 5
Social Skills	18	100.0	4.5	3 - 5
Motor				
Fine Motor	8	44.4	4.0	2 - 5
Gross Motor	1	5.6	4.0	

subjects whose need(s) within each specific area of adaptive behavior were not addressed. Overall, 63.9% of the specific adaptive behavior needs identified across all student subjects were addressed at school. However, the frequency with which student subjects' need(s) were addressed within each specific area of adaptive behavior varied significantly (Range = 20% - 94%). For example, the six specific areas of adaptive behavior in which student subjects' needs were most frequently addressed included communication (94.1%), preacademics (90.9%), social skills (88.9%), prevocational (83.3%), independence/mobility (80.0%), and math (75.0%). Conversely, the six specific areas of adaptive behavior in which student subjects' needs were least frequently addressed included personal hygiene/grooming (20.0%), time (25.0%), toileting (27.2%), leisure (38.5%), eating (44.4%), and challenging behavior

(50.0%). Table 39 provides additional information regarding the percentage of students with need in each specific area of adaptive behavior whose needs were being addressed, as well as those whose needs are not addressed.

Table 39. Specific need congruence percentages

Adaptive Behavior Domains	Need Addressed		Need Not Addressed	
	Number of Students	Percent of Students	Number of Students	Percent of Students
Independent Functioning				
Eating	4	44.4	5	55.6
Toileting	3	27.2	8	72.7
Hygiene	3	20.0	12	80.0
Dressing	5	55.6	4	44.4
Domestic	5	71.4	2	28.6
Independence/Mobility	12	80.0	3	20.0
Leisure	5	38.5	8	61.5
Functional Academics				
Preacademics	10	90.9	1	9.1
Reading	13	72.2	5	27.8
Math	12	75.0	4	25.0
Writing	10	71.1	4	28.6
Money	8	66.7	4	33.3
Time	3	25.0	9	75.0
Prevocational				
Prevocational	15	83.3	3	16.7
Vocational	0	0.0	0	0.0
Social/Communication				
Challenging Behavior	9	50.0	9	50.0
Communication	16	94.1	1	8.9
Social Skills	16	88.9	2	11.1
Motor				
Fine Motor	5	62.5	3	37.5
Gross Motor	1	100.0	0	0.0

General Need Congruence

This section provides information regarding the results of analyses conducted to determine the relationships between student subject need(s) in each general area of adaptive behavior and the their educational programs. Specifically, information is presented regarding the average percent of specific adaptive behavior need(s) within each general area of adaptive

behavior that were addressed within student subjects' educational programs, as well as general need congruence ratings.

Percentages. For each area in which student subjects had an identified need, general need congruence was determined by answering the question "When a student has one or more identified needs in a general area of adaptive behavior, are the majority of those needs specifically addressed by an IEP goal and/or a quality intervention?" To answer this question, the percentage of specific adaptive behavior needs addressed within a general area of adaptive behavior was calculated for each student. A general need congruence percentage was calculated in each general area of adaptive behavior for each student subject who had one or more specific adaptive behavior needs in that area. This was done by calculating the total number of specific adaptive behavior needs a student had within an area that were addressed by an IEP goal and/or an intervention (i.e., specific need congruence rated 4 or 5), dividing by the total number of specific adaptive behavior needs identified for the student in that area, and multiplying by 100. On average, general need congruence percentages varied significantly across the four general areas of adaptive behavior in which students were found to have one or more specific adaptive behavior needs. For example, the average percentage of student subjects' specific adaptive behavior needs that were addressed within their educational programs was 46.8% (Range = 20.0% - 80%) in the area of independent functioning, 67.5% (Range = 25.0% - 90.9%) in the area of functional academics, 83.3% (Range = 0.0% - 100.0%) in the area of prevocational/vocational, and 77.3% (Range = 50.0% - 94.1%) in the area of social/communication.

Ratings. When coding general need congruence, yes/no ratings were used. A "yes" rating, indicating general need congruence, was coded when over 50% of a student's specific adaptive behavior needs were addressed by his/her educational program, otherwise, a "no" rating was coded. As presented in Table 40, all student needs were not addressed in any general area of adaptive behavior.

These findings indicate that, in general, the degree to which the specific adaptive behavior needs of students with autism are addressed within their educational programs varies significantly based on the type of need. Specifically, when students with autism have

Table 40. General need congruence

Adaptive Behavior Domain	Need Addressed			Need Not Addressed		
	Number of Students	Percent of Students with Need	Mean Percent of Needs Addressed	Number of Students	Percent of Students with Need	Mean Percent of Needs Addressed
Independent Functioning	6	33.3	80.1	12	66.7	24.6
Functional Academics	14	77.8	78.8	4	22.2	25.0
Prevocational/Vocational	15	83.3	100.0	3	16.7	0.0
Social/Communication	16	88.9	83.3	2	11.1	41.7

one or more specific needs in the area of independent functioning, the majority of those needs are typically not addressed within their educational programs. Conversely, when students with autism have one or more specific needs in the areas of functional academics, social/communication, or prevocational/vocational, the majority of their needs in each area are typically addressed within their educational programs. Additional information regarding general need congruence for student subjects is also presented in case study format in Appendix Y.

Research Question #1b: Do the Educational Programs of Students with Autism Guide Instructional Activities?

This section presents the specific variables examined, as well as the results of statistical analyses employed to answer research question #1b, *"Do students with autism who have IEP goals and/or specific interventions addressing adaptive behavior needs spend a greater percentage of their school day engaged in adaptive behavior instructional activities than students with autism who do not have IEP goals and/or specific interventions addressing adaptive behavior needs?"* Specifically, data are presented regarding the dependent variable (i.e., percentage of the school day student subjects were engaged in adaptive behavior instructional activities), as well as the results of t-test analyses.

ABOS Instructional Engagement Data

This section presents ABOS summary information regarding the percent of time student subjects were engaged in instructional activities at school. Specifically, information is

provided regarding instructional organization, student engagement, primary interactor, adult/peer instruction-related behavior, and primary skill areas.

Instructional organization. As discussed previously, an average of 717 intervals (SD = 10.14, Range = 694 – 732), or 5.97 hours, of ABOS data were collected for each student subject. In addition to summarizing ABOS data by category, these data were reviewed by interval and summarized to reflect the percentage of time that student subjects were engaged in instructional activities (see Appendix T for ABOS instructional engagement decision making guide). Instructional engagement data reflect the convergence of two factors: 1) attempts were made to structure or organize the learning environment and/or intervene with the student in order to facilitate student learning in a primary skill area, and 2) the student was actually engaged in targeted activities. On average, student subjects were engaged in adaptive behavior instructional activities 50.98% of the school day (SD = 14.84, Range = 26.39% - 81.89%). Student subjects were also engaged in other instructional activities an average of 10.06% of the school day (SD = 8.47, Range = 0.00% - 33.89%). On average, the instructional organization strategies (see Appendix K for definitions regarding instructional organization strategies) observed to be in place most frequently when student subjects were engaged in instructional activities included other organizational strategies (e.g., computer, video, small group, large group) (M = 28.49%, SD = 17.76, Range = 0.00% - 59.58%), one-on-one (M = 17.47%, SD = 12.05, Range = 0.56% - 42.50%), and physical/visual structure (M = 10.57%, SD = 18.13, Range = 0.00% - 61.56%). Table 41 provides additional information regarding ABOS data regarding the instructional organization strategies in place when student subjects were engaged in instructional activities.

Student engagement. Student engagement during instructional activities was also calculated (see Appendix K for definitions regarding student engagement). When engaged in instructional activities, student subjects, on average, were observed to spend 13.75% of the day attending (SD = 10.43, Range = 0.00% - 36.67%) and 47.30% of the day responding (SD = 12.76, Range = 23.61% - 73.19). In addition, student subjects were observed to be engaged when there was no instruction occurring (i.e., displaying behaviors appropriate for the specific activity without any instructional supports in place) an average of 21.21% of the

Table 41. Instructional organization data

Instructional Organization	Number of Students Engaged	Percent of Students	Mean Percentage of Student Day (Total Sample)	Range Percentage of Student Day (Total Sample)
Other Instructional Strategy	17	94.4	28.49	00.00 – 59.58
No Instructional Activity	18	100.0	21.21	00.15 – 42.92
One-On-One Instruction	18	100.0	17.47	00.56 – 42.50
Physical/Visual Structure	10	55.6	10.57	00.00 – 61.56
Peer Tutoring/Mediation	16	88.9	4.07	00.00 – 15.63
Communication System	4	22.2	0.44	00.00 – 04.44
No Instructional Activity and Student Not Engaged	18	100.0	5.32	00.97 – 12.50
Student Not Engaged	18	100.0	12.43	01.53 – 23.61

school day (SD = 11.52, Range = 0.15% - 42.92%). Student subjects were not engaged when there was instruction occurring an average of 5.34% of the school day (SD = 3.51, Range = 0.97% - 12.50%). Table 42 provides additional information regarding the types of student subject engagement observed when student subjects were engaged in instructional activities.

Table 42. Student engagement data

Student Engagement	Number of Students	Percent of Students	Mean Percentage of Student Day (Total Sample)	Range Percentage of Student Day (Total Sample)
Responding	18	100.0	47.30	23.61 – 73.19
Attending	16	88.9	13.74	00.00 – 36.67
Student Engaged, But No Instructional Activity	18	100.0	21.21	00.15 – 42.92
Student Not Engaged	18	100.0	12.43	01.53 – 23.61
Student Not Engaged and No Instructional Activity	18	100.0	5.32	00.97 – 12.50

Primary interactor. The primary interactor, or the individual who held primary responsibility for intervening or interacting with the student subject during an interval in which the student was engaged in an instructional activity, was also calculated for ABOS data (see Appendix K for definitions related to primary interactor). On average, when student subjects were engaged in instructional activities, the primary interactor categories most frequently observed included the classroom teacher (M = 27.21%, SD = 16.08, Range = 3.83% - 55.69%), an educational associate (M = 21.20%, SD = 16.95, Range = 0.00% - 67.46%), no staff (M = 5.83%, SD = 8.05, Range = 0.00% - 27.22%), and a peer (M = 4.14%, SD = 4.58, Range = 0.00% - 16.72%). Table 43 presents additional information regarding the primary interactor categories observed when student subjects were engaged in instructional activities.

Table 43. Primary interactor data

Primary Interactor	Number of Students	Percent of Students	Mean Percentage of Student Day (Total Sample)	Range Percentage of Student Day (Total Sample)
Classroom Teacher	18	100.0	27.21	03.83 – 55.69
Educational Associate	16	88.9	21.20	00.00 – 67.46
No Staff	13	72.2	5.82	00.00 – 27.22
Peer	16	88.9	4.14	00.00 – 16.72
Ancillary	5	27.8	1.40	00.00 – 10.14
Other Staff	5	27.8	0.66	00.00 – 06.81
Student Teacher	2	11.1	0.37	00.00 – 03.33
Volunteer	1	5.6	0.13	00.00 – 02.36
Substitute Teacher	2	11.1	0.11	00.00 – 01.81
No Instructional Activity	18	100.0	21.21	00.15 – 42.92
No Instructional Activity and Student Not Engaged	18	100.0	5.32	00.97 – 12.50
Student Not Engaged	18	100.0	12.43	01.53 – 23.61

Adult/peer instruction-related behavior. The specific adult/peer instruction-related behavior that was in place when student subjects were engaged in instructional activities was also calculated (see Appendix K for definitions regarding adult/peer instruction-related behavior). On average, when student subjects were engaged in instructional activities, the most frequently observed adult/peer instruction related-behavior categories included multiple modality instruction (M = 28.56%, SD = 15.19, Range = 6.39% - 63.00%), no instruction-related behavior (M = 16.12%, SD = 10.87, Range = 0.46% - 35.42%), and verbal instruction (M = 11.89%, SD = 7.84, Range = 1.75% - 30.01%). Table 44 presents additional information regarding the adult/peer instruction-related behaviors used when student subjects were engaged in instructional activities.

Table 44. Adult/peer instruction-related behavior data

Adult/Peer Instruction-Related Behavior	Number of Students	Percent of Students	Mean Percentage of Student Day (Total Sample)	Range Percentage of Student Day (Total Sample)
Multiple Modality	18	100.0	28.56	06.39 – 63.00
None	18	100.0	16.12	00.46 – 35.42
Verbal Instruction	18	100.0	11.89	01.75 – 30.01
Modeling	11	61.1	1.35	00.00 – 06.39
Physical Assistance	14	77.8	1.22	00.00 – 06.25
Other	11	61.1	1.09	00.00 – 04.72
Instruct/Prompt Peer	8	44.4	0.54	00.00 – 03.72
Consequate	9	50.0	0.27	00.00 – 01.75
No Instructional Activity	18	100.0	21.21	00.15 – 42.92
No Instructional Activity and Student Not Engaged	18	100.0	5.32	00.97 – 12.50
Student Not Engaged	18	100.0	12.43	01.53 – 23.61

Primary skill. The primary skill activities targeted when student subjects were engaged in instructional activities was also calculated (see Appendix K for definitions regarding primary skill activities). On average, student subjects were engaged in instructional activities related to functional academics 29.83% of the school day (SD = 12.06, Range = 9.03% - 55.88%), independent functioning 14.80% of the school day (SD = 11.55, Range = 2.92% - 44.31%), non-adaptive behavior activities (e.g., music) 10.06% of the school day (SD = 8.47, Range = 0.00% - 33.89%), social/communication 5.27% of the school day (SD = 6.20, Range = 0.00% - 22.14%), and prevocational/vocational activities 1.07% of the school day (SD = 2.21, Range = 0.00% - 6.53%). When considering specific areas of adaptive behavior, student subjects were most frequently engaged in instructional activities related to preacademics (M = 10.08%, SD = 10.72, Range = 0.00% - 35.97%), reading (M = 7.53%, SD = 6.82, Range = 0.00% - 23.84%), independence/mobility activities (M = 7.09%, SD = 3.61, Range = 2.22% - 12.92%), math (M = 4.56%, SD = 4.38, Range = 0.00% - 13.06%), and writing (M = 4.49%, SD = 5.34, Range = 0.00% - 14.24%). Conversely, student subjects were found to be least frequently engaged in instructional activities related to toileting (M = 0.24%, SD = 0.38, Range = 0.00% - 1.25%), personal hygiene/grooming (M = 0.26%, SD = 0.28, Range = 0.00% - 0.83%), dressing (M = 0.57%, SD = 0.89, Range = 0.00% - 3.35%), prevocational (M = 1.07%, SD = 2.21, Range = 0.00% - 6.53%), and domestic (M = 1.21%, SD = 3.59, Range = 0.00% - 15.42%). Additional information is provided in Table 45 regarding the primary skills targeted when student subjects were engaged in instructional activities.

Comparisons between total ABOS data and instructional engagement data indicated that while student subjects were physically present during a wide variety of specific adaptive behavior skill activities, purposeful instruction or intervention did not always occur during those activities. In addition, when instruction and/or intervention occurred, students were not always engaged. Overall, when students were observed to be physically present during adaptive behavior activities, students were engaged in instruction, on average, 59.19% of the time (SD = 12.11, Range = 41.04% - 82.27%). However, this finding varied significantly across the four general areas of adaptive behavior. For example, students were engaged in instruction, on average, only 38.03% (SD = 18.61) of the time during independent

Table 45. Primary skill data

Primary Skill Activities	Number of Students	Percent of Students	Mean Percentage of Student Day (Total Sample)	Mode Percentage of Student Day (Total Sample)	Range Percentage of Student Day (Total Sample)
Independent Functioning	18	100.0	14.80	2.92	02.92 – 44.03
Eating	14	77.8	2.13	.00	00.00 – 10.28
Toileting	8	44.4	.23	.00	00.00 – 01.25
Hygiene	11	61.1	.26	.00	00.00 – 00.83
Dressing	11	61.1	.57	.00	00.00 – 03.35
Domestic	7	44.4	1.18	.00	00.00 – 15.42
Independence/Mobility	18	100.0	6.49	3.61	01.91 – 12.92
Leisure	13	72.2	3.94	.00	00.00 – 21.21
Functional Academics	18	100.0	29.83	29.86	09.03 – 55.88
Preacademics	16	88.9	10.08	.00	00.00 – 35.97
Reading	16	88.9	7.53	.00	00.00 – 23.84
Math	13	72.2	4.56	.00	00.00 – 13.06
Writing	12	66.7	4.49	.00	00.00 – 14.24
Money	7	38.9	1.60	.00	00.00 – 11.15
Time	12	66.7	1.57	.00	00.00 – 06.39
Prevocational	5	27.8	1.07	.00	00.00 – 06.53
Prevocational	5	27.8	1.07	.00	00.00 – 06.53
Vocational	0	0.0	0.00	.00	00.00 – 00.00
Social/Communication	13	72.2	5.28	.00	00.00 – 22.14
Communication	8	44.4	1.39	.00	00.00 – 05.16
Social Skills	11	61.1	3.89	.00	00.00 – 17.96
Other Skill Activities	16	88.9	10.06	.00	00.00 –33.89
No Instructional Activity	18	100.0	21.21	11.39	00.15 – 42.92
No Instructional Activity and Student Not Engaged	18	100.0	5.32	.97	00.97 – 12.50
Student Not Engaged	18	100.0	12.43	1.53	01.53 – 23.61

functioning activities. In comparison, students were engaged in instruction an average of 76.76% (SD = 9.36) of the time during functional academic activities, 61.33% (SD = 36.25) of the time during prevocational/vocational activities, and 68.16% (SD = 31.32) of the time during social/communication activities. Specific adaptive behavior activities during which students were engaged in instruction the least included leisure, eating, toileting, and personal

hygiene/grooming. Conversely, specific adaptive behavior activities during which students were most frequently engaged in instruction included communication, money, time, math, and writing. Additional information is provided in Table 46 regarding differences between total ABOS data and instructional opportunity data related to each primary skill area.

Table 46. Differences between total ABOS data and instructional engagement data

Primary Skill Areas	Number of Students Engaged	Percent of Students Present During Activities	Mean Percent of Activity Time in Which Students Were Engaged in Instructional Activity	Range Percentage of Activity Time in Which Students Were Engaged in Instructional Activity
Independent Functioning	18	100.0	38.03	08.24 - 72.05
Eating	14	82.3	30.84	00.00 - 100.0
Toileting	8	57.1	35.54	00.00 - 100.0
Hygiene	11	78.6	46.62	00.00 - 100.0
Dressing	11	100.0	58.95	00.00 - 100.0
Domestic	7	77.8	72.87	00.00 - 100.0
Independence/Mobility	18	100.0	53.85	19.12 - 85.37
Leisure	13	72.2	21.16	00.00 - 94.32
Functional Academics	18	100.0	76.76	61.02 - 93.65
Preacademics	16	100.0	71.24	11.11 - 100.0
Reading	16	100.0	71.63	27.78 - 100.0
Math	13	100.0	81.35	26.32 - 100.0
Writing	12	100.0	76.80	14.29 - 100.0
Money	7	87.5	85.15	66.67 - 100.0
Time	12	100.0	84.61	25.00 - 100.0
Prevocational	5	83.3	61.33	14.29 - 100.0
Prevocational	5	83.3	61.33	14.29 - 100.0
Vocational	0	0.0	0.0	
Social/Communication	13	100.0	68.16	00.00 - 100.0
Communication	8	100.0	88.27	66.67 - 100.0
Social Skills	11	84.6	67.04	00.00 - 100.0

Differences in Student Engagement in Instructional Activities Based on Need Congruence

This section provides information regarding the results of statistical analyses used to determine the differences between students in the need addressed and need not addressed groups in terms of the percentage of time they were engaged in adaptive behavior instructional activities at school. Specifically, data are provided regarding the results of t-test

analyses conducted for each specific area of adaptive behavior, as well as for each general area of adaptive behavior.

T-test analyses: Specific areas of adaptive behavior. T-test analyses were used to determine whether student subject engagement in adaptive behavior instructional activities differed based on whether or not their needs were addressed within their educational program. For each specific area of adaptive behavior, specific need congruence ratings were used to identify student subjects in the need addressed and need not addressed groups. Table 47 provides information regarding the average percentage of time students in each group were engaged in instructional activities related to each specific area of adaptive behavior.

Table 47. Percentage of school day engaged in specific adaptive behavior instructional activities: Comparison between students in needs addressed and needs not addressed groups

Adaptive Behavior Domains	Percent of Day Engaged in Adaptive Behavior Instructional Activities: Student Needs Addressed			Percent of Day Engaged in Adaptive Behavior Instructional Activities: Students Needs Not Addressed		
	Mean	Standard Deviation	Range	Mean	Standard Deviation	Range
Independent Functioning						
Eating	3.54	2.41	00.83 – 06.39	2.96	4.31	00.00 – 10.28
Toileting	0.41	0.49	00.00 – 00.96	0.35	0.43	00.00 – 01.25
Hygiene	0.56	0.25	00.32 – 00.82	0.17	0.19	00.00 – 00.56
Dressing	1.09	1.34	00.00 – 03.35	0.88	0.85	00.00 – 01.94
Domestic	3.78	6.56	00.00 – 15.42	0.00	0.00	00.00 – 00.00
Independence/ Mobility	7.11	3.75	01.91 – 12.72	5.37	3.60	02.22 – 09.31
Leisure	11.57	7.88	03.33 – 21.21	0.45	0.72	00.00 – 02.08
Functional Academics						
Preacademics	14.73	11.64	00.96 – 35.97	0.00	0.00	00.00 – 00.00
Reading	7.42	6.98	00.00 – 23.84	7.80	7.16	00.00 – 16.94
Math	5.49	4.56	00.00 – 13.06	0.76	1.53	00.00 – 03.06
Writing	6.49	5.48	00.00 – 14.24	3.21	5.92	00.00 – 12.08
Money	3.57	3.49	00.00 – 11.15	0.00	0.00	00.00 – 00.00
Time	4.09	2.61	01.25 – 06.39	1.04	1.31	00.00 – 03.75
Prevocational						
Prevocational	1.28	2.37	00.00 – 06.53	0.00	0.00	00.00 – 00.00
Social/Communication						
Communication	1.57	1.97	00.00 – 05.16	0.00	0.00	00.00 – 00.00
Social Skills	4.17	5.54	00.00 – 17.96	1.53	2.16	00.00 – 03.06

For t-test analyses, the dependent variable was specific need congruence; specifically, whether or not a student's need was addressed within his/her educational program. The independent variable was the amount of time students were engaged in domain-specific adaptive behavior instructional activities. For each specific area of adaptive behavior, it was hypothesized that student subjects in the need addressed group would spend a greater percentage of their school day engaged in adaptive behavior instructional activities related to that specific area than students in the need not addressed group. One-way t-tests were used to test this hypothesis for each specific area of adaptive behavior. A significance value of $p < .05$ was set a priori for each t-test analysis. Significant results were found in the areas of personal hygiene/grooming ($t = 3.04$, $p < .05$), leisure ($t = 4.07$, $p < .05$), math ($t = 2.00$, $p < .05$), money ($t = 1.99$, $p < .05$), and time ($t = 2.76$, $p < .05$). These results indicate that when students' needs within these specific areas of adaptive behavior are addressed within their educational programs, they spend a significantly greater percentage of their school day engaged in domain-specific instructional activities than students whose needs are not addressed. Table 48 presents additional information regarding the results of t-test analyses conducted for each of the sixteen specific area of adaptive behavior.

T-test analyses: General areas of adaptive behavior. T-test analyses also were used to determine whether student subject engagement in adaptive behavior instructional activities differed based on whether or not the majority of their needs were addressed within their educational program. For each general area of adaptive behavior, general need congruence ratings were used to identify student subjects in the need addressed and need not addressed groups. A student subject was placed in the need addressed group for a general area of adaptive behavior if the majority of his/her specific adaptive behavior needs (i.e., over 50%) within that area were addressed by an IEP goal and/or a school intervention. A student subject was placed in the need not addressed group for a general area of adaptive behavior if the 50% or fewer of his/her specific adaptive behavior needs within that area were addressed by an IEP goal and/or a school intervention. Table 49 provides information regarding the average percentage of time students in each group were engaged in instructional activities related to each general area of adaptive behavior.

Table 48. Results of t-test analyses: Specific areas of adaptive behavior

Adaptive Behavior Domains	T	df	Mean Difference
Independent Functioning			
Eating	0.24	7	0.57
Toileting	0.21	9	0.06
Hygiene	3.04*	13	0.39
Dressing	0.27	7	0.21
Domestic	0.77	5	3.78
Independence/ Mobility	0.72	13	1.74
Leisure	4.07*	11	11.12
Functional Academics			
Preacademics	1.21	9	14.73
Reading	-0.10	16	-0.38
Math	2.00*	14	4.73
Writing	0.99	12	3.27
Money	1.99*	10	3.57
Time	2.76*	10	3.04
Prevocational			
Prevocational	0.91	16	1.28
Social/Communication			
Communication	0.77	15	1.57
Social Skills	0.65	16	2.64

* $p < .05$

Table 49. Percentage of school day engaged in general adaptive behavior instructional activities: Comparison between students in needs addressed and needs not addressed groups

Adaptive Behavior Domains	Percent of Day Engaged in Adaptive Behavior Instructional Activities: Student Needs Addressed			Percent of Day Engaged in Adaptive Behavior Instructional Activities: Student Needs Not Addressed		
	Mean	Standard Deviation	Range	Mean	Standard Deviation	Range
Independent Functioning	25.80	13.31	12.02 – 44.03	9.30	5.01	02.92 – 17.22
Functional Academics	30.68	12.51	09.03 – 55.88	26.87	11.43	15.56 – 41.53
Prevocational	1.28	2.37	00.00 – 06.53	0.00	0.00	00.00 – 00.00
Social/Communication	5.58	6.52	00.00 – 22.14	2.78	0.39	02.50 – 03.06

For t-test analyses, the dependent variable was general need congruence; specifically, whether or not the majority of a student's needs within a general area of adaptive behavior were addressed within his/her educational program. The independent variable was the amount of time students were engaged in domain-specific adaptive behavior instructional activities. For each general area of adaptive behavior, it was hypothesized that student subjects in the need addressed group would spend a greater percentage of their school day engaged in adaptive behavior instructional activities related to that area than students in the need not addressed group. One-way t-tests were used to test the hypothesis for each general area of adaptive behavior. A significance value of $p < .05$ was set a priori for each t-test analysis. Significant results were found in the area of independent functioning ($t = 3.87$, $p < .05$). This result indicates that when students with autism have the majority of their specific independent functioning needs addressed within their educational programs, they spend a significantly greater percentage of their school day engaged in domain-specific instructional activities than students for whom the majority of their needs are not addressed. Table 50 presents the results of t-test analyses conducted for each of the four general areas of adaptive behavior.

Table 50. Results of t-test analyses: General areas of adaptive behavior

Adaptive Behavior Domains	T	df	Mean Difference
Independent Functioning	3.87*	16	16.50
Functional Academics	0.54	16	3.81
Prevocational	0.91	16	1.28
Social/Communication	0.59	16	2.81

* $p < .05$

Research Question #2a: What Factors Interfere with Student Adaptive Behavior Needs Being Addressed at School?

This section presents the results of statistical analyses used to answer research question #2a, *"What factors do teachers report affect their ability to address the adaptive behavior needs of students with autism?"* Specifically, results of descriptive analyses are

presented for teacher subjects' responses regarding reasons underlying IEP team decisions to write or not write IEP goals in specific areas.

Reasons IEP Teams Decided to Write IEP Goals

Teacher subjects provided 94 specific responses regarding reasons underlying IEP team decisions to write IEP goals for student subjects in specific areas of adaptive behavior. Across all general areas of adaptive behavior, the most frequent reason teacher subjects reported regarding why IEP goals were written was that student subject skills did not meet developmental expectations (70.2%). Additional reasons included student subject skills were slightly below average, but the IEP team felt it was an important need to address at that time (9.6%); parents wanted the skill addressed (9.6%); and the IEP team felt that the skill was more of a priority than other areas in which student subjects had need(s) (7.4%). Two additional responses (2.1%) were marked by teacher subjects as "other reason", but no additional information was provided. Table 51 provides additional information regarding teacher-reported reasons why IEP goals were written in each of the four general areas of adaptive behavior. Similar information regarding each specific area of adaptive behavior is presented in Appendix Z.

Overall, these findings suggest that student need underlies the majority of IEP team decisions to write specific IEP goals for students with autism. However, these results also suggest that IEP teams have a tendency to make comparisons between student needs in various areas in terms of relative importance when making decisions regarding what to include in IEPs. Based on these results, student need alone does not appear to constitute the only reason for targeting specific areas in the IEPs of students with autism. These findings also suggest that parent input is a relatively important factor in IEP team decisions regarding which areas of need to target within the IEP of a student with autism.

Reasons IEP Teams Decided Not to Write IEP Goals

Teacher subjects provided 212 specific responses regarding reasons underlying IEP team decisions not to write IEP goals for student subjects in specific areas of adaptive behavior. Across all general areas of adaptive behavior, the most frequent reason teacher subjects reported regarding why IEP goals were not written was that student skills met developmental expectations (44.3%). Additional reasons included the skill was addressed at

Table 51. Teacher reports of reasons why IEP teams wrote IEP goals

	Number of Responses	Percent of Responses
Independent Functioning (N =13)		
Skills Do Not Meet Developmental Expectations	9	69.2
Skills Slightly Below Average, But Important To Address At This Time	1	7.7
Parents Wanted This Skill Addressed	1	7.7
Classroom Curriculum Doesn't Address This Area	1	7.7
More Of A Priority Than Other Areas of Need	1	7.7
All Children With Autism Need Intervention In This Area	0	0.0
Other	0	0.0
Functional Academics (N = 48)		
Skills Do Not Meet Developmental Expectations	34	70.8
Skills Slightly Below Average, But Important To Address At This Time	3	6.2
Parents Wanted This Skill Addressed	6	12.5
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	3	6.2
All Children With Autism Need Intervention In This Area	0	0.0
Other	2	6.2
Prevocational (N = 4)		
Skills Do Not Meet Developmental Expectations	2	50.0
Skills Slightly Below Average, But Important To Address At This Time	1	25.0
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	1	25.0
All Children With Autism Need Intervention In This Area	0	0.0
Other	0	0.0
Social/Communication (N = 29)		
Skills Do Not Meet Developmental Expectations	21	72.4
Skills Slightly Below Average, But Important To Address At This Time	4	13.8
Parents Wanted This Skill Addressed	2	6.9
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	2	6.9
All Children With Autism Need Intervention In This Area	0	0.0
Other	0	0.0

home by the family (14.2%); the skill was addressed by the classroom curriculum (14.2%); student subject skills were slightly below average, but the IEP team felt that it was not important to address at that time (12.3%); an intervention was being implemented to address the skill (10.8%); the IEP team felt that the skill was less of a priority than other areas in which student subjects had need (1.9%); and the IEP team felt that it was too difficult to intervene in the need area (1.4%). Two additional responses (0.9%) were coded as other, but no additional information was provided.

Across the four general areas of adaptive behavior, teacher-reported reasons regarding why IEP teams decided not to write an IEP goal in a specific area varied somewhat. For example, the most frequently reported reasons in the area of independent functioning included the student subject's skills met developmental expectations (48.7%); the skill was addressed at home by the family (24.8%); and the skill was addressed by the classroom curriculum (10.6%). In the area of functional academics, the most frequently reported reasons included the student subject's skills met developmental expectations (43.3%); the student subject's skills were slightly below average, but the IEP team felt that it was not important to address at that time (20.0%); and the skill was addressed by the classroom curriculum (20.0%). The reasons reported most frequently by teacher subjects in the area of prevocational/vocational included the student subject's skills were slightly below average, but the IEP team felt that it was not important to address at that time (50.0%) and the student subject's skills met developmental expectations (35.7%). In the area of social/communication, the most frequently reported reasons included an intervention was being implemented to address the skill (40.0%); the student subject's skills met developmental expectations (32.0%); and the skill was addressed by the classroom curriculum (20.0%). Table 52 provides additional information regarding teacher-reported reasons why IEP goals were not written in each of the four general areas of adaptive behavior. Similar information regarding each specific area of adaptive behavior is presented in Appendix AA.

Overall, these findings suggest that a variety of factors affect IEP team decisions not to write specific IEP goals for students with autism. While the most frequently coded response regarding why IEP teams decided not to write IEP goals in specific areas of

Table 52. Teacher reports of reasons why IEP teams did not write IEP goals

	Number of Responses	Percent of Responses
Independent Functioning (N =113)		
Skills Meet Developmental Expectations	55	48.7
Not Important To Address This Area Now	6	5.3
Skills Addressed At Home By Family	28	24.8
Classroom Curriculum Addresses This Area	12	10.6
Intervention Being Implemented	7	6.2
Too Difficult To Intervene	1	0.9
Less of a Priority Than Other Areas of Need	2	1.8
Other	2	1.8
Functional Academics (N = 60)		
Skills Meet Developmental Expectations	26	43.3
Not Important To Address This Area Now	12	20.0
Skills Addressed At Home By Family	1	1.7
Classroom Curriculum Addresses This Area	12	20.0
Intervention Being Implemented	5	8.3
Too Difficult To Intervene	2	3.3
Less of a Priority Than Other Areas of Need	2	3.3
Other	0	0.0
Prevocational (N = 14)		
Skills Meet Developmental Expectations	5	35.7
Not Important To Address This Area Now	7	50.0
Skills Addressed At Home By Family	0	0.0
Classroom Curriculum Addresses This Area	1	7.1
Intervention Being Implemented	1	7.1
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Social/Communication (N = 25)		
Skills Meet Developmental Expectations	8	32.0
Not Important To Address This Area Now	1	4.0
Skills Addressed At Home By Family	1	4.0
Classroom Curriculum Addresses This Area	5	20.0
Intervention Being Implemented	10	40.0
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0

adaptive behavior was that the student subject did not have need in that area, other reasons accounted for the majority of responses from teacher subjects. For example, it appears that IEP teams tend not to address specific student needs within the IEP when the need is already being addressed in some way, either at home or at school. Of greatest concern is that

decisions were made not to address specific student needs within the IEP, because interventions were already in place. This finding raises significant concerns regarding the overall quality and integrity of educational instruction and intervention for individuals with autism, particularly in the areas of documentation, monitoring, and evaluation.

Research Question #2b: How Are Beliefs Regarding Adaptive Behavior Related to Instructional Activities for Students with Autism?

This section presents the results of statistical analyses used to answer research question #2b, *"How are teacher and parent beliefs regarding the importance of adaptive behavior and related programming related to the amount of school time students with autism are engaged in adaptive behavior instructional activities?"* Specifically, information is presented regarding parent and teacher scores on the ABAS, as well as the relationship between these scores and the percentage of time student subjects were engaged in adaptive behavior domain-specific instructional activities.

Parent and Teacher ABAS Scores

Possible scores on each ABAS subscale range from 5 to 30. High scores on the ABAS subscale indicate that the respondent views the skills within a general area of adaptive behavior (i.e., independent functioning, functional academics, prevocational/vocational, social/communication) as important for the long-term independence of individuals with autism and/or as a higher priority for being addressed within the educational programs for students with autism in comparison to other areas of need. On average, parent subject scores on the ABAS were highest in the areas of social/communication ($\underline{M}$ = 24.00, $\underline{SD}$ = 3.05, Range = 19 – 30) and independent functioning ($\underline{M}$ = 23.61, $\underline{SD}$ = 4.17, Range = 13 – 30). Parent subject ABAS scores were slightly lower, on average, in the areas of functional academics ($\underline{M}$ = 21.78, $\underline{SD}$ = 2.96, Range = 18 - 29) and prevocational/vocational ($\underline{M}$ = 22.05, $\underline{SD}$ = 2.90, Range = 18 - 30). Teacher subject scores on the ABAS were, on average, highest in the area of social/communication ($\underline{M}$ = 23.22, $\underline{SD}$ = 3.10, Range = 20 - 30). In comparison, teacher subject ABAS scores were slightly lower, on average, in the areas of prevocational/vocational ($\underline{M}$ = 21.00, $\underline{SD}$ = 3.56, Range = 13 - 30), functional academics ($\underline{M}$ = 21.05, $\underline{SD}$ = 4.14, Range = 15 - 28), and independent functioning ($\underline{M}$ = 22.67, $\underline{SD}$ = 3.77, Range = 13 - 30). These findings indicate that parents of elementary students with autism

tend to view social/communication and independent functioning skills as slightly more important to address in the educational programs of students with autism than functional academics or prevocational/vocational skills. In comparison, teachers of elementary students with autism tend to view social/communication skills as slightly more important to address in the educational programs of students with autism than skills in the three other general areas of adaptive behavior. Table 53 provides additional information regarding the percentage of parent subjects whose scores on the ABAS subscales fell within the high, moderate, and low ranges.

Table 53. Parent and teacher ABAS scores

Adaptive Behavior Domains	Low ABAS Score 5 – 14		Medium ABAS Score 15 - 22		High ABAS Score 23 - 30	
	Number	Percent	Number	Percent	Number	Percent
Parent Scores						
Independent Functioning	1	5.6	3	16.7	14	77.8
Functional Academics	0	0.0	13	72.2	5	27.8
Prevocational/Vocational	0	0.0	9	50.0	9	50.0
Social/Communication	0	0.0	6	33.3	12	66.7
Teacher Scores						
Independent Functioning	1	5.6	10	55.6	7	38.9
Functional Academics	0	0.0	11	61.1	7	38.9
Prevocational/Vocational	1	5.6	11	61.1	6	33.3
Social/Communication	0	0.0	10	55.6	8	44.4

Relationship Between Parent ABAS Scores and Student ABOS Data

To determine if a relationship existed between parent and teacher beliefs regarding the importance of adaptive behavior programming in each of the four general areas of adaptive behavior and the amount of time student subjects were engaged in domain-specific instructional activities, exploratory statistical analyses using 3X3 matrices were used. These analyses were conducted separately for parent subjects and teacher subjects. Cutoff scores for the ABAS were set to represent high scores (23+), medium scores (15 – 22), and low scores

(below 15). Cutoff scores for ABOS student instructional engagement data varied across the four general adaptive behavior domains (see Appendix AB for specific cutoff scores). Results of these analyses indicated that a possible positive relationship existed between parent beliefs and teacher beliefs regarding the importance of programming in the area of independent functioning and the percentage of time student subjects were engaged in independent functioning instructional activities. No other significant relationships appeared to exist in any of the other general areas of adaptive behavior. Table 54 presents the results based on parent ABAS scores. Table 55 presents the results based on teacher ABAS scores.

Table 54. Relationship between parent ABAS scores and student instructional engagement data: Results of exploratory 3X3 matrix analyses

ABOS Student Engagement in Instructional Activities	Low ABAS Scores: Number of Parents	Medium ABAS Scores: Number of Parents	High ABAS Scores: Number of Parents
Independent Functioning			
High Instructional Engagement	0	0	6
Medium Instructional Engagement	0	2	4
Low Instructional Engagement	1	1	4
Functional Academics			
High Instructional Engagement	0	5	1
Medium Instructional Engagement	0	5	1
Low Instructional Engagement	0	3	3
Prevocational/Vocational			
High Instructional Engagement	0	1	3
Medium Instructional Engagement	0	1	0
Low Instructional Engagement	0	7	6
Social/Communication			
High Instructional Engagement	0	3	3
Medium Instructional Engagement	0	2	4
Low Instructional Engagement	0	1	5

Table 55. Relationship between teacher ABAS scores and student instructional engagement data: Results of exploratory 3X3 matrix analyses

ABOS Student Engagement in Instructional Activities	Low ABAS Scores: Number of Teachers	Medium ABAS Scores: Number of Teachers	High ABAS Scores: Number of Teachers
Independent Functioning			
High Instructional Engagement	0	2	4
Medium Instructional Engagement	0	5	0
Low Instructional Engagement	1	3	3
Functional Academics			
High Instructional Engagement	0	5	2
Medium Instructional Engagement	0	2	3
Low Instructional Engagement	0	4	2
Prevocational/Vocational			
High Instructional Engagement	0	2	2
Medium Instructional Engagement	0	1	0
Low Instructional Engagement	1	8	4
Social/Communication			
High Instructional Engagement	0	3	3
Medium Instructional Engagement	0	5	1
Low Instructional Engagement	0	2	4

To further explore the relationship between parent and teacher beliefs and student engagement in domain-specific adaptive behavior instructional activities, Pearson product moment correlation analyses were conducted. These analyses were conducted separately for parent subjects and teacher subjects in each of the general areas of adaptive behavior. In the area of independent functioning, the analysis conducted between parent ABAS scores and student ABOS data resulted in a significant Pearson correlation of 0.59, $p < .01$. This finding indicates that student subjects whose parents held more positive beliefs regarding the importance of adaptive behavior programming in the area of independent functioning spent significantly more time engaged in independent functioning instructional activities at school

than student subjects whose parents held less positive beliefs. Nonsignificant Pearson correlations were found in the areas of functional academics, prevocational/vocational, and social/communication. Nonsignificant Pearson correlations were also found in all four areas of adaptive behavior for analyses conducted using teacher data. These findings indicate that student subject engagement in domain-specific adaptive behavior instructional activities did not vary systematically in relation to parent or teacher beliefs regarding the importance of adaptive behavior programming in these areas. Additional information regarding the results of Pearson product moment correlation analyses is presented in Table 56 for parent ABAS data and Table 57 for teacher ABAS data.

Table 56. Relationship between parent ABAS scores and student instructional engagement data: Results of Pearson product moment correlation analyses

Adaptive Behavior Domains	R	p
Independent Functioning	0.59**	0.01
Functional Academics	0.12	0.64
Prevocational/Vocational	-0.04	0.89
Social/Communication	-0.06	0.81

**$p < .01$

Table 57. Relationship between teacher ABAS scores and student instructional engagement data: Results of Pearson product moment correlation analyses

Adaptive Behavior Domains	R	p
Independent Functioning	0.36	0.14
Functional Academics	0.13	0.60
Prevocational/Vocational	0.07	0.79
Social/Communication	-0.27	0.92

Research Question #2c: What Factors Affect Whether the Adaptive Behavior Needs of Students with Autism Are Addressed at School?

This section presents the results of qualitative analyses used to answer research question #2c, "*What factors affect the ability of teachers to address the adaptive behavior*

needs of students with autism?" Specifically, results of qualitative analyses regarding the factors that teacher subjects reported interfered with their ability to address the adaptive behavior needs of student subjects are presented, as well as additional resources and/or changes teacher subjects reported would be required to address all the adaptive behavior needs of student subjects.

Teacher-Reported Interfering Factors: Qualitative Results

During ABPI interviews, teacher subjects were asked what factors made addressing specific adaptive behavior needs of student subjects difficult. Review of ABPI teacher interview data identified 141 individual quotes, each representing specific answers to this question. For the purpose of this study, these answers are referred to as interfering factors. These quotes were grouped into 28 specific interfering factor categories and seven general interfering factor categories: student factors, student outcomes factors, intervention factors, resource factors, time factors, parent factors, and collaboration factors. Six additional specific interfering factor categories were very individualized and did not naturally fall into any of the aforementioned general categories. Definitions for the specific interfering factor categories are presented in Table 58, which is followed by a narrative description of the specific factors within each general category and descriptive data regarding the frequency with which specific factors were reported. Teacher quotes within each specific interfering factor category are presented in Appendix AC.

Student factors. Four specific student factors were reported by teacher subjects as interfering with their ability to address the adaptive behavior needs of student subjects. These interfering factors represent obstacles faced by teacher subjects related to specific student needs, characteristics, and/or behaviors. The specific interfering factors in this general category included the need itself, need is unchangeable, presence of confounding need(s), and student reaction to environmental factors. The first student factor, need itself, was defined based on teacher quotes as characteristic(s) of the student's need itself. Teacher quotes regarding this interfering factor primarily involved statements regarding the type or pervasiveness of the skill deficit or problematic behavior presented by the student. This interfering factor was reported by teacher subjects across all four general areas of adaptive behavior need, but was reported most frequently in relation to student subject need in the

Table 58. Teacher-reported factors that make addressing student adaptive behavior needs difficult

General Interfering Factor Categories	Specific Interfering Factor Categories
Student Factors	**Need Itself**: Characteristics of the need itself makes it difficult to intervene.
	Need Is Unchangeable: The student's need is viewed as a stable trait or as resistant to intervention.
	Presence of Confounding Need: Student need(s) in another area (challenging behavior, communication) interferes with implementation of the intervention.
	Student's Reaction to Environmental Factors: Student's sensitivity to environmental factors, such as noise level, interferes with intervention implementation.
Student Outcome Factors	**Limited Level of Student Success or Slow Rate of Student Progress**: Despite intervention, student progress is limited or slow.
	Student is Not Obtaining Independence in Skill Area: Despite the fact that a skill has been taught, the student does not demonstrate the skill without adult prompting or support.
Intervention Factors	**Lack of Strategies to Address Need Area or Not Knowing How to Intervene**: Only a limited number of strategies available to address need or teacher does not know how to address student's need.
	Limited Experience with Intervention: Teacher has limited experience in implementing a specific intervention.
	Choosing Specific Equipment to Use: Determining what intervention equipment is most appropriate for both the teacher and the student.
	Having to Generate New Strategies to Address Student Need(s): Teacher has to frequently find new intervention strategies, because intervention loses effectiveness with student.
	Nature of the Intervention: Characteristic(s) of the intervention or intervention strategies required to address student need.
Resource Factors	**Lack of Facilities or Staff**: School does not have the necessary facilities or enough staff to address student's needs.
	Lack of Curriculum and/or Materials: Teacher or school does not have the necessary curriculum or materials to address student's need.
Time Factors	**Amount of Time Required to Plan, Organize, and/or Prepare**: Significant amount of time related to getting materials together, developing materials, making modifications, and/or structuring environment is required each day in order to implement intervention.

Table 58. (continued)

General Interfering Factor Categories	Specific Interfering Factor Categories
	Amount of Time Required to Monitor Progress: Significant amount of time is required to collect progress monitoring data.
	Amount of Time Required to Implement Intervention: Significant amount of time is involved in teaching student or implementing intervention.
	Insufficient Time to Cover All Student Needs: Lack of time to adequately address all of student's needs.
Parent Factors	**Parent Reluctance to Talk About Need or to Have Need Addressed**: Student's parent(s) does not want to acknowledge student's need or have it addressed at school.
	Amount of Parent Follow Through at Home: Efforts related to facilitating follow through with interventions at home or concerns regarding amount of follow through at home.
	Different Expectations at Home and School: Expectations regarding student's display of skills or behavior are different at home than at school.
Collaboration Factors	**Demands of Collaboration**: Demands related to having to work with other people in order to develop and/or implement intervention or to ensure that the intervention is implemented.
	Problem with Staff Consistency or Compliance in Implementing Intervention: School staff implement intervention differently than expected by teacher.
Other Factors	**Skill Lacks Relevance for Student**: Target skill is not relevant for student outside of school or student does not understand the relevance of the skill.
	Accurately Assessing Student Comprehension or Progress: Student's understanding or skill level is difficult to evaluate.
	Student Integration: Demands related to mplementing interventions when student is integrated in general education setting.
	Diverse Individual Needs: Significant variability in the needs of the individual student and/or in the needs of other special education students.
	Mismatch between Student Needs and Program: Program is not structured to address the student's specific need(s).
	Obtaining Communication Devices: Inability to obtain communication devices in a timely manner.

general area of social/communication. For example, one teacher reported that it was difficult to address the behavioral needs of a student subject, "because of the behaviors involved, that is, physical aggression. That's always difficult to work with." One teacher simply stated that it was difficult to address the student's communication needs, "because he doesn't speak." Another teacher stated:

> Her functioning level is so low that her language is all...she may come to school, for instance, and say, 'New coat' and I'll say, 'What about it?' You know, she left out so many words. A lot of times you don't know if she's asking a question or trying to tell you something, because she isn't using enough words.

The second student factor, need is unchangeable, was defined based on quotes from teacher subjects as student need is viewed as a stable trait or as resistant to intervention. For example, one teacher subject stated that it was difficult to address the student subject's social skills need, because "it's just not in his makeup to interact." Another teacher stated, "I can't change how he focuses on activities," in response to questions regarding the difficulty of addressing the student's prevocational need. When asked why it was difficult to address the behavioral needs of a student subject, one teacher responded, "there are so many behaviors that [he] has and trying to do an intervention, it doesn't work with [him]. It doesn't work. That has been very difficult, because that's something that is just [him]. And there's nothing you can do about that."

The third student factor, presence of confounding need, was defined as student need(s) in another area of adaptive behavior interferes with implementation of the intervention. Teacher quotes regarding this interfering factor primarily involved statements regarding noncompliant behaviors displayed by student subjects during activities related to addressing another area of need. For example, one teacher subject reported that the reason it was difficult to address the personal hygiene/grooming needs of a student subject was "the fact that he doesn't want to do it." Another teacher stated, "Just her willingness at certain times to want to do anything. We've had instances in the last couple of weeks where she just won't read, turn the page. Some real behavior problems," in response to questioning regarding the difficulty of addressing the student subject's reading needs. When asked what made it difficult to address the leisure needs of another student, the teacher subject

responded, "Just her willingness to cooperate." Several additional teacher quotes were related to confounding language needs. For example, one teacher reported that it was difficult to address a student subject's needs in the area of social skills, because of "the language with her conversations, it's hard." Student subject inattention and/or distractibility was also identified by several teacher subjects as a confounding need. For example, one teacher subject reported that the student subject's distractibility made it difficult to address her reading needs, stating:

> It depends on what kinds of things are forefront in her mind. A lot of times its 'Who's absent?' 'But why is she absent?' So all of a sudden, out of nowhere, you're talking about the ugly duckling and she'll say, 'But why is [he] gone?' So it's kind of hard to predict what is primary in her thinking that day.

The fourth student factor, student reaction to environmental factors, was defined based on quotes from teacher subjects as student's sensitivity to environmental factors interferes with intervention implementation. Teacher quotes regarding this interfering factor primary involved statements regarding the reaction of student subject to noise levels in various school settings and how this compromised teacher attempts to implement interventions. For example, one teacher noted that:

> The sensitivity to the noise is probably one of the hardest things that we've had. That's one of the most things that we've really had to work on is to try to desensitize him from the noises. The distracting noises you know, even when you go to the gym how loud it is and in the lunch room. It's very loud. So he can't handle that. It is overwhelming.

Another teacher subject stated:

> [Y]ou're always trying to see how it's going to work with the regular kids...you know it might work with our kids, is he being real shy? But we might even go into [the other special education teacher's] room and try to do something with her class. And you know is he going to interact with those kids? What's the noise level going to be like in that class as far as being social? You know if it's too loud then automatically he will cry or sign to go to the bathroom or he wants to get out. So

trying to work on social skills, but trying to get him used to the noise level is real hard.

Student outcome factors. Two specific student outcome factors were reported by teachers as interfering with their ability to address the adaptive behavior needs of student subjects. These interfering factors represent obstacles faced by teacher subjects related to the resistance of student subject needs to intervention. The specific interfering factors in this area include limited level of student success or slow rate of progress and student is not obtaining independence in skill area. The first student outcome factor, limited level of student success or slow rate of progress, was defined as student progress is limited or slow despite intervention. For example, one teacher subject stated, " It's difficult. Not difficult coming up with strategies to use, but difficult in the fact that sometimes we see minimal progress in that area." One teacher subject simply stated, "It's been a slow process." When asked what made it difficult to address the student's social skills needs, one teacher reported:

> Not hard in the way that we've come up with ways or strategies to get that to happen, but it's been difficult. I've seen him grow so much from where he was, but yet it's been a long process to get him to sit at a computer and take a turn. I mean he's come a long way, a very long way. But that was difficult to get him to that point, to be able to do that.

The second student outcome factor, student is not obtaining independence in skill area, was defined as despite the fact that a skill has been taught, the student does not demonstrate the skill without adult prompting or support. For example, one teacher subject reported:

> What I find with her, tasks that she'll do for me independently during one-on-one work, she won't know when it's completed sufficiently for her. For example, there was a puzzle that I taught her to do in one-on-one, she did it like that. It went to independent, I moved it over to independent work and she just played with it.

When asked what factor made it difficult to address the student's communication needs, the teacher stated:

> It isn't very hard to develop, but sometimes it is difficult to implement, because she still doesn't take that [PECS] card with her automatically. It still requires an adult to

make sure she has the card with her before she goes.

Intervention factors. Five specific intervention factors were reported by teachers as interfering with their ability to address the adaptive behavior needs of student subjects. These interfering factors represent difficulties faced by teacher subjects related to finding and implementing intervention strategies to address the adaptive behavior needs of student subjects. Specific interfering factors in this area include lack of strategies to address need area or not knowing how to intervene, limited experience with intervention, choosing specific equipment to use, having to generate new strategies to address student need(s), and nature of the intervention. The first intervention factor, the lack of strategies to address need area or not knowing how to intervene, was defined based on quotes from teacher subjects as only a limited number of strategies are available to address a need or teacher does not know how to address student's need. For example, one teacher stated, "Well, there's not that many strategies to use. There are only a few things that you can do." Another teacher reported, "We don't really know what to do, we're just guessing." When asked what factor made it difficult to address the prevocational needs of the student subject, one teacher subject reported, "...because trying to find the strategies that work for him, you know, what really will get him to tune in. And we haven't gotten there yet."

The second intervention factor, limited experience with intervention, was defined as the teacher has limited experience in implementing a specific intervention. For example, one teacher reported, "He's not consistent with it [communication system] and I'm first year in using this stuff, too. I just don't have experience with this kind of stuff. So it's like, 'Are we feeling this out together or not?'"

The third intervention factor, choosing specific equipment to use, was defined as determining what equipment is most appropriate for both the student and the teacher. For example, one teacher stated that the factor that made it difficult to address the communication needs of a student subject was "Trying to figure out what communication device is most appropriate for him and easiest for me to switch between, you know, what we're doing, our different activities."

The fourth intervention factor, having to generate new strategies to address student need(s), was defined based on quotes from teacher subjects as teacher has to frequently find

new intervention strategies, because intervention loses effectiveness with student. For example, one teacher reported that the factor that made it difficult to address a student subject's behavioral needs was "Just trying to find reinforcement, what he will work for. Because he'll do some things and then all of a sudden it's not reinforcing any more." Another teacher stated:

> Thinking up new ideas. Keeping him interested in it. A lot of time I expect too much and then it's very frustrating for both of us. It's like, 'Oh, this didn't work' and he's looking at me like, 'What are you doing?'

The fifth intervention factor, nature of the intervention, was defined based on quotes from teacher subjects as characteristics of the intervention or intervention strategies required to address student's need. Teacher quotes regarding this interfering factor primarily involved statements regarding the type of intervention required to address a student's need or the requirements of implementing a specific intervention strategy. Several teacher quotes were related to the physical nature of the intervention or the physical requirements of implementing a specific intervention. For example, one teacher reported that "Right now we have to physically remove him. And there are days he escalates even more and will wet his pants." Another teacher stated, "On some days just keeping up with her physically is difficult, having the energy to keep going. She has a lot of energy." The repetitive nature of the intervention strategy was the focus of several other teacher quotes in this category. For example, when asked why it was difficult to address the grooming needs of the student subject, the teacher stated, "...because it's a lot of saying 'Don't do that' or "Get a Kleenex'." Another teacher stated:

> It's just a lot of modeling for her...you just about have to model exactly what you want her to say and have her repeat it. And so it really keeps you on your toes. It's like you're doing her a disservice if you don't correct her every single time.

In addition, several teacher quotes in this category referred to the amount of individual adult support required in implementing the intervention. For example, one teacher said, "...because sometimes it takes two of us to get him to work." Another teacher subject reported that it was difficult to address the student subject's math needs, stating:

She needs a lot more one-on-one. She needs a lot more manipulatives, and it's harder for her to follow along during math with the whole group. You often times have to kind of go off on your own and teacher her one on one.

Resource factors. Two specific resource factors were reported by teachers as interfering with their ability to address the adaptive behavior needs of student subjects. These interfering factors represent obstacles faced by teacher subjects related to the lack of appropriate resources to address the adaptive behavior needs of student subjects. Specific interfering factors in this area included lack of facilities and/or staff and lack of curriculum and/or materials. The first resource factor, lack of facilities and/or staff, was defined based on quotes from teacher subjects as the school does not have the necessary facilities or enough staff to address the student's need. For example, one teacher subject reported, "Probably the most difficult thing would [be] not having the facilities right here" as the factor which made addressing the student subject's domestic need most difficult. Another teacher reported that it was difficult to address the student's independence/mobility needs, because "...we just don't have the facilities or staff for that program." One teacher reported that the factor that made addressing the student's domestic need difficult was "Not having the help to do the hand over hand and the actual showing."

The second resource factor, lack of curriculum and/or materials, was defined as teacher or school does not have the necessary curriculum or materials to address the student's need. For example, one teacher stated, "Usually there is not enough laundry to have 8 kids fold laundry at the same time; they get one towel." Another teacher, when asked about the factors that made addressing the student's independence/mobility needs difficult, stated that "There's no curriculum for that program."

Time factors. Four specific time factors were reported by teacher subjects as interfering with their ability to address the adaptive behavior needs of student subjects. These interfering factors represent obstacles faced by teachers related to time demands involved in trying to address the adaptive behavior needs of student. Specific interfering factors in this area including amount of time required to plan, organize, and/or prepare; amount of time required to monitor progress; amount of time required to implement intervention; and insufficient time to cover all student needs. The first time factor, amount of time required to

plan, organize, and/or prepare, was defined based on quotes from teacher subjects as a significant amount of time related to getting materials together, developing materials, making modifications, and/or structuring the environment required in order to implement intervention. For example, when asked what factor made it difficult to address the communication needs of a student, the teacher reported:

> [B]ecause you have to get all kinds of pictures. It's difficult to get everything set up and try to figure out, and make all the pictures, and figure out all the sizes for them. It takes a lot of time."

Another teacher reported that to address the leisure needs of a student subject, "It has to be really structured for [her]. So, whatever activity we do we have to have cues and prompts set up for her. It's a lot of time in advance to prepare for that." When asked what factor made it difficult to address the prevocational needs of a student subject, the teacher stated:

> Just getting everything broken down for her so that it's helping her independence. It's just setting things up so they are organized enough for her. It's not difficult to do, it's just taking the time to make it step by step.

The second specific time factor, amount of time required to monitor progress, was defined as a significant amount of time is required to collect progress monitoring data. For example, one teacher reported, "It takes time and making sure you keep track of the writing that he's done through the week."

The third specific time factor, amount of time required to implement intervention, was defined as a significant amount of time is involved in teaching student or implementing intervention. For example, when asked what factor made addressing a student subject's need in the area of behavior, one teacher stated, "When I first started, there was no time, none for me to do anything. I never saw this desk, because I was with him all the time. It just takes a lot of time to do it." Another teacher reported that it was difficult to address the student subject's behavior needs, stating:

> Time that I could be working with other kids. Times we could be working individually or whatever. Last week, the day she was so awful, it took just one of us sitting in here with her a lot of the time, or outside the door so she wouldn't open and slam it. So you lose a lot of time sometimes.

Another teacher simply stated, "It takes a lot of time to get him to do tasks. A lot of someone's time."

The fourth specific time factor, insufficient time to cover all student needs, was defined based on quotes from teacher subjects as the lack of time to adequately address all the student's needs. For example, one teacher subject stated, "The time factor, to try to teach some of the stuff, I don't have that." Another teacher, when asked what factor made it difficult to address the student subject's domestic needs, stated, "There's so many thing you want to teach in the limited amount of time. And probably just making sure that the basic things are covered."

Parent factors. Three specific factors related to working with parents were reported by teachers as interfering with their ability to address the adaptive behavior needs of student subjects. Specific interfering factors in this area included parent reluctance to talk about student's need or have need addressed; amount of parent follow through at home; and different expectations at home and school. The first parent factor, parent reluctance to talk about need or have need addressed, was defined based on quotes from teacher subjects as student's parent(s) does not want to acknowledge student's need or have it addressed at school. For example, one teacher subject reported that it was difficult to address the personal hygiene/grooming needs of a student subject, stating:

> Some people get real defensive if you bring it up. I mean I try to be real, bring it up related to situations. Some parents are pretty receptive, but you get a few parents like his that just, well, 'I don't want you to talk about that' I don't know if they don't want to talk about it because they're embarrassed or what.

When asked what factor made it difficult to address a student's independence/mobility needs, the teacher stated, "I think her parents' reluctance for us to work on that. In a way, I think that they are almost afraid, and I can understand that."

The second specific parent factor, amount of parent follow through at home, was defined as efforts related to facilitating parent follow through at home and/or concerns regarding amount of parent follow through in implementing intervention at home. For example, one teacher reported that the factor that made addressing the student subject's communication needs difficult was "making sure that they follow through at home." Another

teacher stated, "I don't know how much he uses it [communication system] at home. I have sent pictures home. I just don't know."

The third specific parent factor, different expectations at home and school, was defined based on teacher quotes as expectations regarding student's display of skills or behavior are different at home than at school. For example, when asked what factor made it difficult to address the student subject's eating need, the teacher reported:

> It's difficult to address at school when it's not addressed at home. It's kind of accepted at home. So it makes her be even more set in her ways. So it comes down to the point when we have to force it, which is not good.

Another teacher subject reported that it was difficult to address a student subject's domestic needs, because "I think he's never been expected to do it at home, whereas another student, he's been told to do things and he does them and he engages in them, and he knows what he's supposed to do." Another teacher subject stated that it was difficult to address the student subject's dressing needs, "...because he's just, it's the crossover from home to school. what we expect, what's different there."

Collaboration factors. Two specific collaboration factors were reported by teacher subjects as interfering with their ability to address the adaptive behavior needs of student subjects. These interfering factors represent obstacles faced by teacher subjects related to working with other staff or professionals to address the adaptive behavior needs of student subjects. Specific interfering factors in this area include demands of collaboration and problems with staff consistency and compliance in implementing interventions. The first collaboration factor, demands of collaboration, was defined based on quotes from teacher subjects as demands related to having to work with other people in order to develop and/or implement interventions or to ensure that interventions are being implemented consistently. For example, one teacher subject reported that the factor that made it difficult to address the behavioral needs of a student subject, because "...you need to work more with the classroom teacher and make sure she has a way to deal with it." When asked what factor made it difficult to address the student subject's math needs, a teacher stated, "It's getting everyone together to make sure that everything is being done the same way through all of them." Another teacher said, "You're working with so many different people. It's the time to get

together and make sure you have all the bases covered and the areas covered," in regards to addressing the student subject's reading needs.

The second specific collaboration factor, problem with staff consistency or compliance in implementing intervention, was defined based on teacher subject quotes as school staff implement interventions differently than expected by teacher. For example, one teacher reported, "With him actually eating, they have quit forcing him to eat things that he doesn't like, which it's about time. If we could only get the rest of the personnel trained to not throw things at him like that." In response to a question regarding the factor that made it difficult to address the academic needs of the student, one teacher stated:

> I don't know how to say this, but, what your strategy might be when you're teaching something else as opposed to listening with the [associate] in the room trying to teach that student. And it might not be the same way. And that's real hard. And then you're asked to kind of let them do their own thing and kind of back off for awhile. And then you get frustrated, because you can hear while your teaching something else. They won't take suggestions, so that's my most frustrating thing.

Additional interfering factors. Six additional factors that interfered with their ability to address the adaptive behavior needs of student subjects were reported by teachers, but did not fit into any of the other general categories. These additional interfering factors included skill lacks relevance for student, accurately assessing student comprehension and progress, student integration, diverse individual needs, mismatch between student needs and program, and obtaining communication devices. The first additional factor, skill lacks relevance for the student, was defined based on quotes from teacher subjects as target skill is not relevant to student outside of school or the student does not understand the relevance of the skill. For example, one teacher subject reported that it was difficult to address the independence/mobility needs of a student subject, because "He doesn't connect why he's doing it. He doesn't understand 'Why am I doing this?' He doesn't understand point A to point B. It's not 'What am I going to get?', it's 'What's the point to this?'" Another teacher reported that addressing the domestic needs of a student subject was difficult "...because it's not relevant in any other area of his life except school right now."

The second additional interfering factor, accurately assessing student comprehension or progress, was defined as student's understanding or skill level is difficult to evaluate. For example, one teacher reported that the factor that made it difficult to address the math needs of a student subject was "To try and understand what he's grasping and what he isn't grasping." Another teacher stated, "...you never know for sure what he's comprehending and what he's not, because it doesn't come out real well, on any of it. He could have a bad day and not do anything. It's constantly changing, so that makes it difficult," regarding the academic skills of a student subject. When asked what factor made it difficult to address the domestic needs of a student subject, the teacher reported, "Just trying to figure out what they do and do not know."

The third additional interfering factor, student integration, was defined as demands related to implementing interventions when student is integrated in general education setting. For example, one teacher reported that addressing the social skills needs of a student subject was difficult because, "Well, especially for [him], and a lot of other kids, you need to deal with it when it is happening. And a lot of times it's happening in the regular classroom when I'm not there." Another teacher stated, "It's pretty easy for us, but as he moves into the regular classroom then it becomes difficult. It's the demands on the teacher to balance what he needs with the rest of the class," in regards to addressing the student subject's prevocational needs.

The fourth additional interfering factor, diverse individual needs, was defined based on teacher subject quotes as significant variability in the needs of the individual student and/or in the needs of other special education students. For example, one teacher subject reported that it was difficult to address the communication needs of the student subject, because "I have five children that use different [communication] devices." Another teacher reported that it was difficult to address the student subject's domestic needs, because "All the different levels of kids, I think." Another teacher reported that it was difficult to address the math needs of a student subject, because "...you have to know all of the different individual needs. And exactly pinpoint where they're going and what works with that child. Sometimes they need more visual learning. Sometimes they need more auditory. It depends on their learning style and what's best for them."

The fifth additional interfering factor, mismatch between student need and program, was defined based on teacher subject quotes as the special education program is not structured to address the student's specific need(s). For example, one teacher stated that it was difficult to address the leisure needs of a student subject, because "I guess partly in my program, because we don't deal with [leisure skills] and the opportunity hasn't come up." When asked what factor made it difficult to address a student subject's independence/mobility needs, the teacher stated, "We're not equipped and we don't have that type of program."

The sixth additional interfering factor, obtaining communication devices, was defined as the inability to obtain communication devices in a timely manner. For example, one teacher reported, "It is the plan of [AEA], or their schedule, and getting one [communication device] to try in the classroom. It gets frustrating." When asked what factor made it difficult to address the communication needs of a student subject, the teacher stated, "...trying to get the devices."

Teacher-Reported Interfering Factors: Descriptive Statistics

The frequency with which teacher subjects reported specific factors as interfering with their ability to address the adaptive behavior needs of student subjects varied across the specific areas of adaptive behavior. This section presents the results of descriptive statistical analyses regarding the number and percentage of teacher quotes from all ABPI interview data that represented each of the specific interfering factors. In addition, information is presented regarding the factors that teacher subjects reported interfered with their ability to address the needs of student subjects in each of the four general areas of adaptive behavior. Information regarding teacher-reported interfering factors related to each specific area of adaptive behavior is presented in Appendix AD.

Number and percentage of specific quotes. Of the 141 interfering factors quotes obtained from ABPI teacher interview data, the greatest number of teacher quotes were related to student factors (37.6%), intervention factors (16.3%), and other factors (12.8%). Overall, the specific factors reported most frequently by teacher subjects as interfering with their ability to address the adaptive behavior needs of student subjects included the need itself (17.7%), the presence of confounding need (14.2%), the nature of the intervention (8.5%),

and the amount of time required to plan, organize, and/or prepare (8.5%). The number and percentage of teacher quotes from all ABPI interview data that represented each of the specific interfering factors is presented in Table 59.

Independent functioning. Thirty-six teacher subject quotes related to factors that made addressing the needs of student subjects within the area of independent functioning difficult, were identified from ABPI data. The greatest number of teacher quotes related to this general area of adaptive behavior fell in the categories of student factors (27.8%), additional factors (19.4%), resource factors (13.9%), and parent factors (13.9%). The most frequently reported factor which made address the independent functioning needs of student subjects difficult for teacher subjects included the presence of a confounding need (16.7%), lack of strategies to address need area or not knowing how to intervene (8.3%), lack of facilities and/or staff (8.3%), different expectations at home and school (8.3%), and the skill lacks relevance for student (8.3%). Additional information is provided in Table 60.

Functional academics. Thirty teacher subject quotes related to factors that made addressing the needs of student subjects within the area of functional academics difficult were identified from ABPI data. The greatest number of teacher quotes related to this general area of adaptive behavior fell in the categories of student factors (30.0%), intervention factors (23.3%), and other factors (16.7%). The most frequently reported factor which made address the functional academics needs of student subjects difficult for teacher subjects included the presence of a confounding need (20.0%), lack of strategies or not knowing how to intervene (13.3%), limited level of student success or slow progress (10.0%), and accurately assessing student comprehension or progress (10.0%). Table 61 provides additional information regarding the frequency with which specific interfering factors were reported related to student need(s) in the area of functional academics.

Prevocational/vocational. Twenty-three teacher subject quotes related to factors that made addressing student subject needs within the area of prevocational/ vocational difficult, were identified from ABPI data. The greatest number of teacher quotes related to this general area of adaptive behavior fell in the categories of student factors (26.1%), resource factors (17.4%), and time factors (17.4%). The most frequently reported factor that made address the prevocational/vocational needs of student subjects difficult for teacher subjects included the

Table 59. Frequency with which teachers reported specific interfering factors

Teacher-Reported Interfering Factors	Number of Responses	Percent of Responses
Student Factors	53	37.6
Need Itself	25	17.7
Presence of Confounding Need	20	14.2
Need Is Unchangeable	5	3.5
Student Reaction to Environmental Factors	3	2.1
Intervention Factors	23	16.3
Nature of Intervention	12	8.5
Lack of Strategies to Address Need Area or Not Knowing How to Intervene	7	5.0
Having to Generate New Strategies to Address Student Need(s)	2	1.4
Limited Experience with Intervention	1	0.7
Choosing Specific Equipment to Use	1	0.7
Other Factors	18	12.8
Skill Lacks Relevance for Student	4	2.8
Accurately Assessing Student Comprehension or Progress	4	2.8
Diverse Individual Needs	4	2.8
Student Integration	2	1.4
Mismatch between Student Needs and Program	2	1.4
Obtaining Communication Devices	2	1.4
Time Factors	14	9.9
Amount of Time Required to Plan, Organize, and/or Prepare	7	5.0
Amount of Time Required to Implement Intervention	5	3.5
Amount of Time Required to Monitor Progress	1	0.7
Insufficient Time to Cover All Student Needs	1	0.7
Resource Factors	10	7.1
Lack of Facilities or Staff	5	3.5
Lack of Curriculum and/or Materials	5	3.5
Student Outcome Factors	9	6.4
Limited Level of Student Success or Slow Rate of Student Progress	5	3.5
Student is Not Obtaining Independence in Skill Area	4	2.8
Parent Factors	8	5.7
Different Expectations at Home and School	4	2.8
Parent Reluctance to Talk About Need or to Have Need Addressed	2	1.4
Amount of Parent Follow Through at Home	2	1.4

Table 59. Frequency with which teachers reported specific interfering factors

Teacher-Reported Interfering Factors	Number of Responses	Percent of Responses
Collaboration Factors	6	4.2
Demands of Collaboration	4	2.8
Problem with Staff Consistency or Compliance in Implementing Intervention	2	1.4

Table 60. Teacher-reported factors that make addressing student independent functioning needs difficult

Teacher-Reported Interfering Factors	Number of Responses	Percent of Responses
Student Factors	10	27.8
Presence of Confounding Need	6	16.7
Need Itself	2	5.5
Need Is Unchangeable	1	2.8
Student Reaction to Environmental Factors	1	2.8
Other Factors	8	19.4
Skill Lacks Relevance for Student	3	8.3
Mismatch Between Program and Student Needs	2	5.5
Accurately Assessing Student Comprehension or Progress	1	2.8
Diverse Individual Needs	1	2.8
Resource Factors	5	13.9
Lack of Facilities or Staff	3	8.3
Lack of Curriculum or Materials	2	5.5
Parent Factors	5	13.9
Different Expectations at Home and School	3	8.3
Parent Reluctance to Talk About Need or Have Need Addressed	2	5.5
Intervention Factors	4	11.1
Lack of Strategies to Address Need or Not Knowing How to Intervene	3	8.3
Nature of the Intervention	1	2.8
Time Factors	4	11.1
Amount of Time Required to Plan, Organize, and/or Prepare	2	5.5
Amount of Time Required to Implement Intervention	1	2.8
Insufficient Time to Cover All the Student Needs	1	2.8
Collaboration Factors	1	2.8
Problem with Staff Consistency or Compliance in Implementing Interventions	1	2.8

Table 61. Teacher-reported factors that make addressing student functional academics needs difficult

Teacher-Reported Interfering Factors	Number of Responses	Percent of Responses
Student Factors	9	30.0
Presence of Confounding Need	6	20.0
Need Itself	2	6.7
Need Is Unchangeable	1	3.3
Intervention Factors	7	23.3
Lack of Strategies to Address Need or Not Knowing How to Intervene	4	13.3
Nature of the Intervention	2	6.7
Having to Generate New Strategies to Address Student Need	1	3.3
Other Factors	5	16.7
Accurately Assessing Student Comprehension or Progress	3	10.0
Diverse Individual Needs	2	6.7
Student Outcome Factors	3	10.0
Limited Student Success or Slow Rate of Progress	3	10.0
Collaboration Factors	3	10.0
Demands of Collaboration	2	6.7
Problem with Staff Consistency or Compliance in Implementing Interventions	1	3.3
Time Factors	2	6.7
Amount of Time Required to Plan, Organize, and/or Prepare	1	3.3
Amount of Time Required to Monitor Progress	1	3.3
Resource Factors	1	3.3
Lack of Curriculum or Materials	1	3.3

presence of a confounding need (17.4%), student is not attaining independence in skill area (13.0%), the need itself (8.7%), nature of the intervention (8.7%), lack of facilities and/or staff (8.7%), lack of curriculum and/or materials (8.7%), and amount of time required to plan, organize, and/or prepare (8.7%). Additional information is provided in Table 62.

Social/communication. Fifty-two teacher subject quotes related to factors that made addressing the needs of student subjects within the area of social/communication difficult, were identified from ABPI data. The greatest number of teacher quotes related to this general area of adaptive behavior fell in the categories of student factors (53.8%) and intervention

Table 62. Teacher-reported factors that make addressing student prevocational/vocational needs difficult

Teacher-Reported Interfering Factors	Number of Responses	Percent of Responses
Student Factors	6	26.1
Presence of Confounding Need	4	17.4
Need Itself	2	8.7
Resource Factors	4	17.4
Lack of Facilities or Staff	2	8.7
Lack of Curriculum or Materials	2	8.7
Time Factors	4	17.4
Amount of Time Required to Plan, Organize, and/or Prepare	2	8.7
Amount of Time Required to Implement Intervention	1	4.4
Insufficient Time to Cover All Student Needs	1	4.4
Student Outcome Factors	3	13.0
Student Is Not Obtaining Independence in Skill Area	3	13.0
Intervention Factors	2	8.7
Nature of the Intervention	2	8.7
Other Factors	2	8.7
Skill Lacks Relevance for Student	1	4.4
Student Integration	1	4.4
Parent Factors	1	4.4
Different Expectations at Home and School	1	4.4
Collaboration Factors	1	4.4
Demands of Collaboration	1	4.4

factors (19.2%). The most frequently reported factor that made address the social/communication needs of student subjects difficult for teacher subjects included the need itself (36.5%), the nature of the intervention (13.5%), the presence of confounding need (7.7%), and the need is unchangeable (5.8%). Table 63 presents additional information.

Teacher-Reported Solutions: Qualitative Results

During ABPI interviews, teacher subjects were asked what additional resources would be needed to meet all of the student subject's needs. Review of ABPI teacher interview data identified 52 individual quotes were that represented specific answers to this question. For the purpose of this study, these answers are referred to as solutions. These

Table 63. Teacher-reported factors that make addressing student social/communication needs difficult

Teacher-Reported Interfering Factors	Number of Responses	Percent of Responses
Student Factors	28	53.8
Need Itself	19	36.5
Presence of Confounding Need	4	7.7
Need Is Unchangeable	3	5.8
Student Reaction to Environmental Factors	2	3.8
Intervention Factors	10	19.2
Nature of the Intervention	7	13.5
Limited Teacher Experience with Intervention	1	1.9
Choosing Specific Equipment to Use	1	1.9
Having to Generate New Strategies to Address Student Need	1	1.9
Time Factors	4	7.7
Amount of Time Required to Plan, Organize, and/or Prepare	2	3.8
Amount of Time Required to Implement Intervention	2	3.8
Other Factors	4	7.7
Obtaining Communication Devices	2	3.8
Student Integration	1	1.9
Diverse Individual Needs	1	1.9
Student Outcome Factors	3	5.8
Limited Student Success or Slow Rate of Progress	2	3.8
Student Is Not Obtaining Independence in Skill Area	1	1.9
Parent Factors	2	3.8
Amount of Parent Follow Through at Home	2	3.8
Collaboration Factors	1	1.9
Demands of Collaboration	1	1.9

quotes represented 25 specific solution categories and four general solution categories: training solutions, time solutions, information and consultative support solutions, and resource solutions. Six additional teacher-reported solution categories were very individualized and did not naturally fall into any of the aforementioned general categories. Definitions for the specific solution categories are presented in Table 64, which is followed by a narrative description of the specific solutions within each general category and descriptive data regarding the frequency with which specific solutions were reported.

Table 64. Teacher-reported solutions required to address all student subjects' needs

General Solution Categories	Specific Solution Categories
Training Solutions	**Appropriate Undergraduate Training for Special Education Teachers:** Necessity of appropriate training in college for special education teachers related to working with students with autism.
	Appropriate Undergraduate Training for General Education Teachers: Having appropriate training in college related to working with students with autism would make it easier for general education teachers to address student needs.
	Additional or On-going Training for Special Education Teachers: Opportunities for special education teachers to learn new information through additional training or on-going training.
	Additional Training for General Education Teachers: Opportunities for general education teachers to learn new information regarding teaching students with autism through additional training.
	Autism Training for Teacher Associates: Providing teacher associates with specific autism training.
	Training for All School Staff Involved with Student: Having all school staff who work with student receive the appropriate type of training.
	Consistent Training for All Persons Involved with the Student: Having all individuals who work or interact with the student receive appropriate training to facilitate better collaboration.
Time Solutions	**More Planning and/or Preparation Time:** Extra time for planning or preparing for activities related to addressing student needs.
	More Time to Implement Additional Intervention Strategies: Extra time to implement additional intervention strategies with the student.
	More Time to Support General Education Teachers: Extra time to provide informational support and assistance to general education teachers.
Information and Consultative Support Solutions	**More Frequent Informational or Consultative Support from AEA Staff or Other Professionals:** More frequent support from AEA staff or other professionals, in terms of providing the special education teacher with assistance in understanding and intervening with student needs.
	Better Informational or Consultative Support from AEA Staff: Better support from AEA staff in terms of definitiveness in making recommendations, transition assistance with new students, and consultation with all school staff involved with the student.
Resource Solutions	**More Money/Funding:** More teacher pay or funds for materials.
	Improved Facilities: Better special education facilities at the school in terms of class size or organization.

Table 64. (continued)

General Solution Categories	Specific Solution Categories
	More Teacher Associates: Having additional teacher associates available to assist special education teacher or provide one-on-one support to student.
	Appropriate Curriculum: Having curriculum or more appropriate curriculum in place to assist or guide teacher in addressing student's needs.
	Additional Technology Resources: Having more technology resources available at school.
	Resources to Provide Community Experiences for Student: Having the necessary resources to provide students with community experiences.
Other Solutions	**Administrative Support:** Support from administration.
	General Education Teacher Willingness to Try Different Strategies: Cooperation from general education teachers in terms of a willingness to try different interventions or strategies.
	Improved Teaming or More Frequent Teaming: Better or more frequent communication and collaboration among the IEP team members or the individuals working with the student.
	Interagency Collaboration Focusing on Long-Term Goals for the Student: Collaboration between appropriate agencies and systems to address the students needs and facilitate attainment of long-term goals.
	Guidance Counselor Services: Having access to guidance counselor services for student.
	Private Counseling Services for Student that is Obtained by Parents: Having parents obtain private counseling services to address emotional needs of the student.

Training solutions. Seven specific training solutions were reported by teacher subjects as being required to address the adaptive behavior needs of student subjects. These specific solutions represent preservice, additional, and/or on-going training that teacher subjects reported as being essential to addressing all the adaptive behavior needs of student subjects. Specific training solutions in this area included appropriate undergraduate training for both special education teachers and general education teachers; additional or on-going training for both special education teachers and general education teachers; autism training for teacher associates; training for all school staff involved with the student; and consistent training for all people involved with the student. The first specific training solution,

appropriate undergraduate training for special education teachers, was defined based on teacher subject quotes as the necessity of appropriate undergraduate training in college for special education teachers related to working with students with autism. For example, one teacher subject stated, "This was my first teaching job and I came in here basically blind. When I first started, I didn't know what was going on. I wish I'd had the right training in college to work with them [students with autism]." Another teacher subject simply stated, "...being trained beforehand in college would have helped."

The second specific training solution, appropriate undergraduate training for general education teachers, was defined based on teacher subject quotes as the necessity of appropriate undergraduate training in college for general education teachers related to working with students with autism. For example, one teacher subject reported "I wish they [general education teachers] had more exposure to autism in college." Another teacher subject stated, "College training. I think any time you're doing inclusion in the classroom...I know one [general education] teacher that had him that had no training in college, and it was a rough deal."

The third specific training solution, additional or on-going training for special education teachers, was defined based on quotes from teacher subjects as opportunities for special education teachers to learn new information through additional training or on-going training. Several teacher subjects reported that additional training in autism was needed. For example, one teacher subject stated:

> I feel new to teaching. I went to back to school in my 40s and got my teaching job. This is the only teaching job I've ever had and so I still feel that I have a lot to learn. Training would really help me in trying to learn more about autism."

Another teacher subject stated:

> I guess ongoing training. They're always learning something new in the field of autism and if we could stay updated that would help a great deal. It changes all the time and an article here and an article there just doesn't cut it."

One teacher subject indicated that additional training on inclusion was needed, stating "Training on how to deal with including the child into the classroom to make it the least

stressful situation you can for the teacher and the student and the other students in the classroom."

The fourth specific training solution, additional training for general education teachers, was defined based on quotes from teacher subjects as opportunities for general education teachers to learn new information regarding teaching students with autism through additional training. Teacher quotes in this area reflected the need to have general education teachers receive training to appropriately facilitate the integration of students with autism in general education settings. For example, one teacher subject stated, "There's not enough training to general ed teachers. We're expected to put special ed students in classrooms where general ed teachers are not anywhere close to being trained." Another teacher subject reported, "If the regular classroom teacher is going to get these children, the teachers need to have some training on what to do with them. And the school district needs to pay for it."

The fifth specific training solution, autism training for teacher associates, was defined as providing teacher associates with specific autism training. For example, one teacher subject stated, "...for the para's that are involved getting, them receiving specific autism training."

The sixth specific training solution, training for all school staff involved with the student, was defined as having all school staff who work with the student receive appropriate training. For example, one teacher subject suggested, "If we are going to deal with students like him, the school system, the school district, needs to make sure we all have the training."

The seventh specific training solution, consistent training for all persons involved with the student, was defined based on teacher subject quotes as having all individuals who work or interact with the student receive the same type of training. For example, one teacher recommended "Kind of a philosophical training for everyone, I think would help." Another teacher stated:

> I think training of all of the people who are involved in the student's life being the same, so that we are all thinking on the same wavelength. Parents, any support people, people that are involv[ed] in their child's life, faculty, other students in the building, administrators.

Time solutions. Three specific time solutions were reported by teacher subjects as being required to address the adaptive behavior needs of student subjects. These specific solutions represent increased time for planning, trying additional intervention strategies, and collaborating, which teacher subjects reported as being essential to addressing all the adaptive behavior needs of student subjects. Specific time solutions in this area included more planning and/or preparation time, more time to implement additional intervention strategies, and more time to collaborate with general education teachers. The first specific time factor, more planning and/or preparation time, was defined based on quotes from teacher subjects as extra time for planning or preparing for activities related to addressing student needs. For example, one teacher subject reported, "Just the planning time. I would just say the extra time." Another teacher subject stated, "Time, because everything is pretty much structured for that particular student. So just the time to get it organized."

The second specific time solution, more time to implement additional intervention strategies, was defined based on teacher subject quotes as extra time to implement new intervention strategies. For example, one teacher subject stated, "More time. Time is the main thing, I think. There's a lot of things I would like to try, more types of strategies, but you just don't have the time to get any of that done."

The third specific time solution, more time to support general education teachers, was defined as extra time to provide informational support and assistance to general education teachers. For example, one teacher subject stated, "The classroom teacher needs to have everything under their belts. They need to teach that child. They just need so much information and assistance. I wish I had more time."

Information and consultative support solutions. Two specific informational and consultative support solutions were reported by teacher subjects as being required to address the adaptive behavior needs of student subjects. These specific solutions represent more frequent and better informational and consultative supports from Area Education Agency (AEA) staff and other professionals that teacher subjects reported as being essential to addressing all the adaptive behavior needs of student subjects. Specific informational and consultative support solutions in this area included more frequent informational and consultative support from AEA staff or other professionals and better informational and

consultative support from AEA staff. The first specific solution in this area, more frequent informational and consultative support from AEA staff or other professionals, was defined by quotes from teacher subjects as more frequent support from AEA staff or other professionals in terms of providing the special education teacher with assistance in understanding and intervening with student needs. Several teacher subjects reported wanting more support and ideas. For example, one teacher subject reported, "Because every student is different—each autistic student I've had—I really feel it's important to have somebody that you can say—'Hey what do I need to do, give me some ideas'." Another teacher stated, "I think we need more support and ideas from other people." In addition, several teacher subjects reported that more support in general was needed. For example, one teacher subject stated, "I don't get a lot of support. I am a loner, definitely a loner in the system. I want to see more support in this system." Another teacher stated:

> More support. We didn't get any support this year, not when the AEA team showed up last week and there's only three weeks of school left when they came. They came last week and he got here in February and we knew three weeks before he was coming.

The second specific solution in this area, better informational and consultative support from AEA staff, was defined as, better informational and consultative support from AEA staff in terms of definitiveness in making recommendations, transition assistance with new students, and consultation with all school staff involved with the student. For example, one teacher stated:

> AEA is pretty good, but they're a little wishy-washy. I would rather that they take a stand. I don't like flopping on both sides, I want to go down the middle. So it's just my personality, I guess. I want it all laid out up front.

Another teacher reported. "I wish they [AEA] would let us know how to handle, what we are supposed to do. We found out he was [coming] before he came, but we didn't find out what to do or what we might be faced with his coming to our new school." One teacher subject suggested:

> They [AEA] need to let his teachers know what they want him to do, what are his goals, what techniques do you want us to use to shape the behavior to get him to stop

> being so defiant. They need to let the classroom teacher and the aide know what techniques to use. And then what to do if he gets upset about it. We don't know. There needs to be more information exchange.

Resource solutions. Six specific resource solutions were reported by teachers as being required to address the adaptive behavior needs of student subjects. These specific solutions represent additional resources related to funding, facilities, staff, and materials, which teacher subjects reported as being essential to addressing all the adaptive behavior needs of student subjects. Specific solutions in this area included more money/funding, improved facilities, more teacher associates, appropriate curriculum, additional technology resources, and resources to provide community experiences for students. The first specific resource solution, more money/funding, was defined based on quotes from teachers as more teacher pay or funds for materials. For example, one teacher reported "I need more money. About $10,000 dollars would probably cover it for me." Another teacher stated, "Having the resources to get what you need to implement. You'd like to go out and buy a lot of the stuff that you know would help or make a difference, books or things like that."

The second specific resource solution, improved facilities, was defined as better special education facilities at the school in terms of class size or organization. When asked what she would need to address all of her student's needs, one teacher simply stated "A bigger room." Another teacher reported:

> [M]aybe one of the other things is making one of our rooms as an academic room and one as a prevocational room and a domestic-type room that you work on those kinds of skills to develop around our curriculum.

The third specific resource solution, more teacher associates, was defined based on teacher quotes as having additional teacher associates available to assist special education teacher or provide one-on-one support to the student. For example, one teacher stated "At times we could use extra people, extra associates." Another teacher reported:

> I would like to see with this amount of students, more help as far as a classroom associate. So when you are attending to 20 IEPs, that's very difficult, because you're trying to attend to each one of those twenty individuals' needs. And they may have

goals in two or three areas. And so that's very difficult. I would say support or help, with an extra body in the room.

The fourth specific resource solution, appropriate curriculum, was defined as having curriculum or more appropriate curriculum in place to assist in guiding the teacher in addressing the student's needs. For example, one teacher stated "The major thing is the curriculum, where do you go? There's not set curriculum in our program here." Another teacher reported "Sometimes I'm not sure that the academic curriculum, which is what we have in this kind of school setting, is always appropriate. So, balancing that."

The fifth specific resource solution, additional technology resources, was defined based on teacher quotes as having more technology resources available at school. For example, when asked what was needed to address all of her student's needs, one teacher stated "More technology. Our school is pretty much limited on it."

The sixth specific resource solution, resources to provide community experiences for student, was defined based on teacher quotes as having the necessary resources to provide students with community experiences. For example, one teacher reported, "...having the resources to, being able to get them involved in the community.

Additional solutions. Six additional specific solutions were reported by teachers. Due to the individualized nature of these solutions, they did not naturally fall into any of the aforementioned general categories. These additional specific solutions included administrative support, general education teacher willingness to try different strategies, improved teaming or more frequent teaming, interagency collaboration focusing on long-term goals for the student, guidance counselor support, and private counseling services for student that is obtained by parents. Teacher subject quotes related to these specific solutions, as well as the specific solutions discussed above are presented in Appendix AE.

Teacher-Reported Solutions: Descriptive Statistics

The specific number of solutions reported by teacher subjects during ABPI interviews ranged from 1 – 6 ($\underline{M} = 2.83$, $\underline{SD} = 1.85$). Of the 51 solution quotes obtained from ABPI teacher interview data, the greatest number were related to specific training solutions (33.3%), specific resource solutions (25.5%), and information and consultative support solutions (17.6%). Overall, the specific solutions reported most frequently by teachers as

being required to address the all the adaptive behavior needs of student subjects included additional or on-going training for special education teachers (13.7%), more frequent informational or consultative support from AEA staff or other professionals (11.8%), more teacher associates (7.8%), better informational or consultative support from AEA staff (5.9%), appropriate curriculum (5.9%), and improved teaming or more frequent teaming (5.9%). The number and percentage of teacher quotes from all ABPI interview data that represented each of the specific solutions is presented in Table 65.

Table 65. Frequency with which teachers reported specific solutions

Teacher-Reported Solutions	Number of Responses	Percent of Responses
Training Solutions	17	33.3
Additional or On-going Training for Special Education Teachers	7	13.7
Appropriate Undergraduate Training for Special Education Teachers	2	3.9
Appropriate Undergraduate Training for General Education Teachers	2	3.9
Additional Training for General Education Teachers	2	3.9
Consistent Training for All Persons Involved with Student	2	3.9
Autism Training for Teacher Associates	1	2.0
Training for All School Staff Involved with Student	1	2.0
Resource Solutions	13	25.5
More Teacher Associates	4	7.8
Appropriate Curriculum	3	5.9
More Money/Funding	2	3.9
Improved Facilities	2	3.9
Additional Technology Resources	1	2.0
Resources to Provide Community Experiences for Student	1	2.0
Information and Consultative Support Solutions	9	17.6
More Frequent Informational or Consultative Support from AEA Staff or Other Professionals	6	11.8
Better Informational or Consultative Support from AEA Staff	3	5.9
Additional Solutions	8	15.7
Improved Teaming or More Frequent Teaming	3	5.9
Administrative Support	1	2.0
General Education Teacher Willingness to Try Different Strategies	1	2.0
Interagency Collaboration Focusing on Long-Term Goals	1	2.0
Guidance Counselor Services	1	2.0
Private Counseling Services for Student that is Obtained by Parents	1	2.0
Time Solutions	4	7.8
More Planning and/or Preparation Time	2	3.9
More Time to Implement Additional Intervention Strategies	1	2.0
More Time to Support General Education Teachers	1	2.0

Discussion

The Individualized Education Program (IEP), as conceptualized within federal legislation, is the driving force behind the development of appropriate educational programming for individuals with disabilities. Smith, Slattery, and Knopp (1993) asserted, "For those students with more serious and/or pervasive disabilities, such as autism, the need for quality instructional programming as outlined in the student's IEP is paramount" (p. 1). This research project was designed to fill a significant void in the professional literature and to facilitate positive outcomes for students with autism by documenting and evaluating current practices in designing and implementing instructional activities to teach adaptive behaviors to students with autism. This project was conducted to address two primary research questions: (1) What is the congruence between student need, IEP goals, teacher reported classroom interventions, and the actual amount of school time students with autism are engaged in adaptive behavior activities? and (2) What factors affect whether adaptive behavior is targeted in the educational programs of students with autism? This section delineates the findings of the current study regarding these research questions. In addition, limitations of the study, implications of this study for practice, and directions for future research are also discussed.

Research Question #1

This section describes findings of this study regarding research question #1, "*What is the congruence between student need, IEP goals, teacher reported classroom interventions, and the actual amount of school time students with autism are engaged in adaptive behavior instructional activities?*" Specifically, findings related to need congruence and related adaptive behavior instructional engagement are presented.

Need Congruence

Overall, results of this study demonstrated that the needs of students with autism were typically addressed within their educational programs. However, this finding varied significantly across the four general areas of adaptive behavior. For example, when students had needs in the areas of functional academics, prevocational/vocational, and social communication the majority of those needs were typically addressed within their educational programs. The specific adaptive behavior needs within these domains that were found to

frequently go unaddressed included time concepts and challenging behaviors, with only 25% and 50% of students, respectively, having their needs addressed by an IEP goal and/or intervention. Conversely, in the area of independent functioning, only 33% of subjects were found to have the majority of their needs addressed by IEP goals and/or interventions. In addition, most specific areas of independent functioning need, including eating, toileting, personal hygiene/grooming, dressing, and leisure, were found to frequently go unaddressed within the educational programs of students with autism. The exceptions to this included domestic needs and independence/mobility needs, which were typically addressed by IEP goals and/or interventions.

As mandated by IDEA 1997 (P. L. 105-17), a special education program for a student with a disability should be designed to address the individual's unique strengths and needs. While the degree of need congruence found in this study in the areas of functional academics, prevocational/vocational, and social/communication is surprisingly positive in light of previous studies that have found little evidence that student need is the basis for individualizing IEPs (Fiedler & Knight, 1986; Reiher, 1992; Smith, 1990; Smith & Simpson, 1989; Tymitz, 1981), it appears that minimal improvements have occurred in the quality of special education services for students with autism in central Iowa since the mid-1990s. For example, Slavens (1997) examined the IEPs of 54 students with autism and found that when assessment information indicated that a student with autism was in need of special education services in a specific area, typically an IEP goal had been written to address that need. However, this finding varied significantly across specific areas of need. For example, only 17% of students with daily living needs and 50% of students with behavioral needs were found to have these needs addressed within their IEPs. This finding was examined in light of the fact that the specific areas targeted for assessment, as well as the subsequent IEP goals, were typically biased toward academics. Slavens (1997) asserted,

> The fact that most students in this study were identified as having need in the area of academic skills...may indicate that practitioners may be collecting more quality and quantity assessment information in the domain areas which they believe are the most important to address. In effect, the belief that the primary purpose of educational

settings is to facilitate academic growth may still dominate special education service delivery for students with autism (p. 108).

While the needs of students with autism in this study were typically found to be addressed within their educational programs, the frequent incongruence between student need and IEP goals/interventions in the areas of independent functioning and challenging behaviors raises significant concerns regarding the long-term prognosis for these individuals. In addition, the fact that the behavioral and adaptive behavior needs that put these individuals at significant risk for dependency and poor adult outcomes are not being addressed within their educational programs, suggests that, in general, special education for these students continues to be short-sighted and focused on the academic environment.

Relationship Between Need Congruence and Student Instructional Engagement

Overall, results of this inquiry call into question the degree to which IEPs developed for students with autism guide daily instruction. In fact, students with autism in this study typically spent the same amount of time engaged in domain-specific adaptive behavior instructional activities at school regardless of whether or not their needs were addressed within their educational programs. While these results may indicate that the needs of students with autism are systematically being addressed at school regardless of whether or not they are addressed in students' IEPs, a more plausible explanation is that the IEPs for students with autism have limited impact on established general or special education programs, in terms of curriculum, instruction, and priorities. In fact, as Tod (1999) stated, "there is yet no evidence that the written IEP is being systematically integrated into teacher planning and translated into classroom practice" (p. 187). Fischer and Frey (2001) came to similar conclusions in their study in which 9 special educators and the parents of 3 students with mental retardation were interviewed regarding IEPs and classroom instruction. In response to questions regarding the impact of IEPs on daily instructional activities, "special educators and parents agreed that the objectives identified on the IEP were most often not consistent with the actual practices" (Fischer & Frey, 2001, p. 154).

However, this finding varied significantly across specific, as well as general, adaptive behavior domains. For example, need congruence in several specific areas of adaptive behavior was found to be significantly related to the amount of time students in this study

were engaged in domain-specific instructional activities. Specifically, students with autism who had IEP goals and/or interventions that addressed their needs in the areas of personal hygiene/grooming, leisure, math, money, and time spent significantly more time engaged in instructional activities targeting those needs than students whose needs were not addressed. In addition, students who had the majority of their independent functioning needs addressed by IEP goals and/or interventions spend significantly more time engaged in independent functioning instructional activities than students whose majority of needs in this area were not addressed. This finding further supports the importance of targeting these adaptive behavior needs in the IEPs of individuals with autism. While these findings should be considered exceptions, they are significant in that they reflect the true spirit of the law. Specifically, these results suggest that educational programs that are individualized based on student need facilitate the delivery of specialized instructional services.

Research Question #2

This section describes findings of this study regarding research question #2, "*What factors affect whether adaptive behavior is targeted in the educational programs of students with autism?*" Specifically, findings are presented regarding IEP team decisions underlying IEP development, parent and teacher adaptive behavior beliefs, and factors teachers reported as affecting their ability to address the adaptive behavior needs of students with autism.

Factors Underlying IEP Team Decisions Regarding Whether or Not to Write Specific IEP Goals

Results of this study demonstrated that a wide variety of factors influence IEP team decisions regarding whether or not to write various IEP goals for students with autism. However, student need was reported most frequently by teachers as the primary reason underlying IEP team decisions. In fact, according to teachers, 70% of the IEP goals for students with autism in this study had been written by IEP teams primarily because the student's skills did not meet developmental expectations. This finding is consistent with what would be expected, due to the fact that entitlement requires a documented need for services and a disability in a particular area or significant discrepancy from peers. Interestingly, while a lack of need was the single most frequently cited reason for IEP goals not being written, representing 44% of teacher responses, this did not account for the majority of responses

teachers provided. Taken together, these findings indicate that while the presence of an IEP goal typically indicated that the student with autism has a significant need in that area, the absence of an IEP goal in a specific area did not necessarily indicate that the student's skills were commensurate with peers.

In interpreting the results of this line of inquiry, it is important to note that teachers reported that IEP team decisions were frequently based on comparisons between various areas of student need and included prioritizing student needs for inclusion in an IEP in terms of relative importance. For example, one reason that influenced team decisions to write an IEP goal was that the student's skills were slightly below average, but that the IEP team felt that it was important to address it now. This response accounted for approximately 10% of IEP goals written. Another factor, accounting for approximately 7% of IEP goals written, was that the IEP team believed that the skill was more of a priority than other areas of need. Overall, these findings suggest that student need alone does not constitute the only reason for targeting specific areas in the IEPs of students with autism. In fact, this evidence suggests that IEP teams have a tendency to make comparisons between student needs and prioritize what is included in the IEP, based on what the team perceives as the most important skills to address.

While no information was available in this study regarding how IEP teams prioritized areas of need, or identified one area of need as more important than another, in developing the IEPs of students with autism, several possible explanations exist. One factor that may play a role in decision making and prioritization of goal areas during IEP meetings is when an area of need is already being addressed. For example, results of this study suggested that IEP teams tend not to target specific areas of need within the IEPs of students with autism when these needs are being addressed in some other way. In fact, such responses represented 40% of the reasons teachers reported as underlying IEP team decisions not to write IEP goals. Specifically, teachers reported that when specific IEP goals had not been written, it was primarily due to the fact that the need was either being addressed at home by the family, addressed by the classroom curriculum, or an intervention was being implemented to address the need. This finding raises significant concern regarding the overall quality and integrity of educational instruction and intervention for students with autism, particularly in the areas of

documentation, monitoring, and evaluation. For example, in pondering the question "What's special about special education?", Fuchs and Fuchs (1995) asserted that the answer lie in its "intensive data-based focus on individual students" (p. 527). Due to rigorous IEP requirements regarding documentation, monitoring, and evaluation, any decision to exclude an area of need from an IEP simply based on the fact that it is already being "addressed" is misguided and inappropriate.

Results of this study also suggest that, at least to some extent, parent input regarding IEP composition influenced IEP team decisions. For example, one response provided by teachers regarding approximately 10% of IEP goals written for students in this study indicated that IEP goals had been written, because parents wanted the skill to be addressed. Interestingly, across the four general areas of adaptive behavior, this reason represented the highest percentage of responses in the area of functional academics. This finding is also consistent with parent subject responses in regard to the relative emphasis that should be placed on various areas of adaptive behavior in the educational programs for their children. Specifically, 10 out of 18 parent subjects, or 56%, indicated that functional academics should receive the most emphasis in the educational programs for their children. While, overall, this reason accounted for only a small percentage of the reasons underlying team decisions to write IEP goals, the apparent importance parent subjects placed on functional academic skills in this study, in relation to other areas of adaptive behavior skills, has significant implications. In light of empirical evidence regarding misconception frequently held by parents of children with autism, these findings suggest that some parents in this study may not fully comprehend the potential impact of autism on their child's long-term functioning. For example, Stone and Rosenbaum (1988) found that parents of children with autism held many misconceptions regarding autistic disorder. Specifically, parents were more likely than teachers or professionals to believe that individuals with autism are more intelligent than indicated on tests and typically don't have mental retardation. In addition, parents in this study were more likely to believe that autism is a childhood disorder that most children outgrow. The authors of this study suggested that, due to these beliefs, "decisions regarding the relative importance of academic versus prevocational instruction may be particularly vulnerable to parent-teacher conflict" (Stone & Rosenbaum, 1988, p. 412).

Relationship Between Parent and Teacher Beliefs and Student Instructional Engagement

Overall, results of this study indicated that student engagement in domain-specific adaptive behavior instructional activities at school did not vary systematically in relation to either parent or teacher beliefs regarding the importance of adaptive behavior programming. Specifically, students whose parents or teacher held more positive beliefs regarding the importance of adaptive behavior programming in the areas of functional academics, prevocational/vocational, or social/communication did not spend significantly more time engaged in instructional activities related to these areas than students whose parents or teachers held less positive beliefs. There are several possible explanations for this finding. As discussed earlier, this finding may reflect the resistance of educational settings or teachers' daily instructional practices to individualize for the needs of students. However, this explanation is based on the assumption that parent and/or teacher beliefs or attitudes directly represent the input that they provide during the development of IEPs and related programming for students with autism. Another explanation is that, while parents and teachers may hold such beliefs, they are not actually voiced at IEP meetings and, thus, are not reflected in IEPs. In fact, there is some empirical evidence to suggest that, even when teachers have strong opinions regarding programming and placement issues, they frequently feel that they have minimal influence on the decisions made during IEP meetings (Martin, Lloyd, Kauffman, & Coyne, 1995). In addition, some authors have speculated that some aspects of the IEP process, particularly in relation to decision making and documentation, may actually interfere with some team members expressing their true feelings or opinions at meetings (Hendrickson, Smith, Frank, & Merical, 1998).

Interestingly, one significant relationship was identified. Specifically, the students with autism whose parents held more positive beliefs regarding the importance of adaptive behavior skills and related programming in the area of independent functioning typically spent more time engaged in independent functioning instructional activities at school than students whose parents held less positive beliefs. This finding is significant in that it suggests the possibility that parental perceptions regarding the adaptive behavior skills most critical for the long-term functioning of individuals with autism may have a significant impact on the focus of their child's educational program. However, greater variability was found in parent

scores in this domain, which may also account for this relationship. In fact, independent functioning was the only area in which any parent was identified as holding relatively negative attitudes. However, this was also true for teachers, but did not result in a significant relationship. Further research into this issue will need to be done before these results can truly be understood.

Teacher-Reported Factors that Affect Their Ability to Address the Adaptive Behavior Needs of Students with Autism

It is widely acknowledged that students with autism pose a unique challenge to educators, due to the number and complexity of problems and impairments that teachers typically do not face in educating typical students or individuals with less serious disabilities (Jacobson & Ackerman, 1990; Janicki, Lubin, & Friedman, 1983; Schopler & Mesibov, 1994; Volmer, 1995). Results of this study indicated that a variety of factors interfered with teachers' abilities to address the adaptive behavior needs of students with autism, including factors related to interventions, time, resources, and collaboration.

While addressing all interfering factors identified by teachers in this study is beyond the scope of this dissertation, the general findings of this study suggest that teachers may feel helpless or ill-equipped to address the complex and significant problems presented by students with autism. Specifically, within-student factors were identified most frequently by teachers as the primary factor that interfered with their ability to address student adaptive behavior needs. For example, when teachers were asked what factors interfered with their ability to address student needs, the response provided most frequently was a description of the student's need. Confounding need was the second most frequently cited interfering factor. This typically represented a student's behavioral needs interfering with the teacher's ability to intervene with other adaptive behavior needs of the student. This finding is not surprising in light of the fact that the challenging behaviors of only 50% of the students with autism in this study were addressed within their educational programs. The third most frequently cited interfering factor in this study represented the belief that student needs, particularly those consistent with a diagnosis of autism, were unchangeable. For example, multiple teachers in this study indicated that they were unable to intervene with a student's need, because the need represented a stable trait. One illustrative comment made by a teacher in this study included,

"It's just not in his makeup to interact." Overall, student factors represented nearly 40% of all teacher quotes and 54% of teacher quotes related to student's social/communication needs, the core deficits associated with autism.

While a wide variety of strategies have been validated in addressing the complex needs of students with autism (Volmer, 1995), due to the fact that autism in a low-incidence disability, teachers may have little, if any, experience in identifying, individualizing, and implementing these intervention strategies. The interpretation that teachers may feel helpless or ill-equipped to address the significant needs of students with autism is further supported by the fact that approximately 17% of teacher quotes were related to intervention factors. These quotes indicated that many teachers felt that they did not know how to intervene with specific needs presented by students with autism or that there were limited intervention strategies available to do so. In addition, when teachers were aware of strategies, they sometimes felt that they had limited experience in implementing the interventions. However, these findings are somewhat difficult to interpret in light of the fact that nearly 75% of teacher subjects had received either TEACCH training or Heartland ABCD training, which both involve 40 hours of intensive, hands-on training. In addition, these trainings involve not only information regarding the characteristics and educational implications of autism, but also supervised practice and feedback in individualizing and implementing specific intervention strategies with students with autism. While some quotes in this area were provided by teachers who had not received specific autism training, the majority were provided by teachers who indicated that they had participated in such training. These results raise questions regarding the degree to which these trainings facilitate the generalization of the skills that teachers learn in training to their work with actual students with autism in school settings. Results suggest that more intensive training or supplemental support, such as follow-up consultation or on-going technical assistance, may be required to maximize the degree to which teachers are able to apply skills learned in training in their work with students with autism.

The interpretation that teachers may feel helpless or ill-equipped to address the significant needs of students with autism is further supported by the fact that the most frequently reported solution for addressing the adaptive behavior needs of students with autism was related to training. Specifically, 33% of teacher quotes related to what was

required to appropriately address the needs of student subjects involved the need for additional training. Teachers reported the need for better undergraduate training, as well as on-going training related to programming for and teaching students with autism. In addition, teachers reported the need for better pre-service and/or additional training for general education teachers and other school staff. These findings suggest that many teachers of students with autism may feel alone in addressing the complex needs of these students, which may lead to a sense of isolation and helplessness.

Overall, these findings support the assertion that students with autism pose a considerable challenge to educators. The results of this study suggest that addressing the adaptive behavior needs of students with autism requires developing technical skills in teachers related to understanding autism and the intervention strategies available to address their needs, as well as extensive collaborative support from other school staff and related service personnel.

Limitations of Study

Before discussing the implications of this study, it is important to examine some of its limitations. This section provides information regarding potential threats to the internal and external validity of this study.

Threats to Internal Validity

Kazdin (1982) describes internal validity as the "the extent to which an experiment rules out alternative explanations of the results" (p. 77). The primary threats to the internal validity of this study include instrumentation and selection bias. Instrumentation refers to changes that occur over time in the instruments or assessment procedures used in a study. Instrumentation is a potential threat to this study due to the use of multiple observers who collected observational data over the course of several months to a year. However, this threat was dealt with by providing observers with intensive training and feedback regarding the use of the observation instrument, as well as conducting frequent reliability checks throughout the study. During training, as well as reliability checks, observers calculated their reliability and discussed disagreements to ensure proper and uniform use of the codes. Overall, inter-rater agreement during this study on the observation instrument was 95%, indicating that the

observers were well trained and consistent in their documentation of what was occurring in the schools.

A second threat to the internal validity of this study involves selection bias. Selection bias refers to "differences between groups that are due to the differential selection or assignment of subjects to groups" (Kazdin, 1982, p. 78). In this study, student subjects were assigned to groups based on whether or not their adaptive behavior needs were addressed within their educational programs. This assignment was used to determine whether differences existed in the amount of time students in each group were engaged in adaptive behavior instructional activities. However, several steps were taken to address this potential threat. First, clear guidelines were developed and used for the systematic identification of need, quality interventions, and need congruence. These guidelines were used consistently to assist in the assignment of subjects to the appropriate group. Second, inter-rater agreement was calculated to determine that the coding of data, as well as decisions regarding group assignment were made consistently. Overall, inter-rater agreement estimates regarding the coding of these data ranged from 87.5% to 94.5%, indicating that the coders were well trained and consistent in their coding decisions, as well as in decisions regarding the assignment of each subject to the appropriate group.

Threats to External Validity

Kazdin (1982) describes external validity as the "extent to which the results of an experiment can be generalized or extended beyond the conditions of the experiment" (p. 81). The primary threats to the external validity of this study involve generality across subjects, reactive experimental arrangement, and reactive assessment. Generality across subjects refers to the degree to which generalizations can be made to individuals who differ from those included in the study. The fact that this study involved a small, non-random sample of elementary-aged students with autism significantly interferes with the degree to which the results obtained in this study can be generalized to other students with autism in Iowa and across the country, as well as to other special education students. While attempts were made to gain the participation of a greater number of students with autism and to randomly select students for inclusion in this study, this was not possible due to a variety of constraints, including access, time, and money.

Another potential threat to the external validity of this study involves reactive experimental arrangement, which refers to "the possibility that subjects are aware that their behavior is being assessed and that this awareness may influence how they respond" (Kazdin, 1982, p. 82). In this study, attempts were made to minimize the awareness of student subjects that they were being observed. Research assistants were instructed not to engage or interact with student subjects during observations and to not share information regarding the target of their observations with curious peers. However, research assistants did conduct parent interviews at the homes of student subjects prior to observations and it is possible that these subjects may have known that they were being observed and, therefore, acted differently. Due to the significant social awareness impairments of individuals with autism, this is considered unlikely to have occurred. Attempts were also made to minimize the reactivity to teacher subjects to observations. While teacher subjects were aware of the fact that observations of the target student were being conducted in their classrooms, they were provided only general information regarding the information collected during observations. Teachers were also instructed by research assistants to "do what they normally do" in order to obtain accurate information regarding the school day of individuals with autism. Despite these precautions, it is, however, possible that teacher subjects' behavior during observations of target students deviated from normal.

Reactive assessment is a similar threat to the external validity of this study. This threat is defined as the "the extent to which subjects are aware that their behavior is being assessed and that this awareness may influence how they respond" (Kazdin, 1982, p. 82). This is a potential threat to the validity of information obtained during teacher interviews. In this study, several steps were taken in an attempt to minimize this threat. For example, all attempts were made by research assistants to develop rapport with teacher subjects during the study. In addition, teacher interviews were primarily conducted following the collection of all observational data. However, despite these steps, it is possible that information provided by teacher subjects during interviews were biased toward providing higher quality services to student subjects than was actually occurring.

Implications for Practice

The results of this study have several important implications for practice. First, IEP teams need to place greater emphasis on the assessment and subsequent educational programming for the independent functioning and behavioral needs of students with autism. The presence of such needs have been shown to consistently put individuals with developmental disabilities, including autism, at increased risk for dependence and poor outcomes in adulthood (Felce & Emerson, 2001; Lucyshyn, Olson, & Horner, 1995; McGrew, Bruininks, & Thurlow, 1992; Wacker, et al., 1983; Walker & Calkins, 1986). It is essential that IEP teams serving these students understand the importance of addressing these skills, as well as the significant risks that accompany decisions not to address these needs. To facilitate the long-term inclusion of individuals with autism in the community, it is imperative that educators and related service personnel address independent functioning deficits and challenging behaviors within the special education programs of individuals with autism. Second, efforts need to be made to increase the engagement of students with autism in instructional activities across the school day. Results of this study suggest that, on average, students with autism spend nearly 50% of the school day either not engaged or receiving no instruction. A variety of strategies have been validated for increasing the opportunity that students with developmental disabilities, including autism, have to practice skills. These strategies involve systematically embedding instruction in routine, planned, and child-initiated activities (Bricker, Pretti-Frontczak, & McComas, 1998; Giangreco, Cloninger, & Iverson, 1993). To facilitate greater engagement, it is crucial that educators take advantage of these strategies in programming and intervening with the adaptive behavior needs of students with autism. Third, university training programs for both teachers and related service providers need to promote the use of the problem solving process for use with all special education students. The results of this study suggest that, despite reform efforts, traditional special education practices may continue to dominate the provision of services to students with autism. It is, therefore, imperative that all educational professionals develop the skills to functionally assess the needs of students with autism in order to design and implement interventions that have a high probability of facilitating student success. University faculty must promote the development of IEPs based on functional assessment information that can

guide daily instructional practices, as well as the use of research-based interventions. It is also essential that educators come to value progress monitoring technology for the feedback it provides regarding the effectiveness of intervention. Fourth, improvements in the delivery of informational and consultative support services to general and special education teachers is also critical. Students with autism present unique challenges to educators. The results of this study suggest that many teachers do not feel that they have adequate knowledge to identify and implement appropriate intervention strategies to address the needs of these students. In order to facilitate the provision of appropriate educational services to these students and, ultimately, improve their long-term functioning, school psychologists and other related service providers must provide higher levels of support and training to teachers and other school staff who serve individuals with autism. This support should include not only information regarding the characteristics of autism and research-based intervention strategies, but also assistance and training in individualizing and implementing such interventions. To promote the use of research-based practice, it is also essential that practitioners assume a "hands-on" approach, when necessary, to model the use of such interventions in their training of teachers and school staff.

Directions for Future Research

Based on the findings of this study, several lines of future research to increase the knowledge base regarding educational programming for students with autism can be identified. First, replication of this study with a greater number of students with autism, both in Iowa and across the country, would provide information regarding the representativeness of the results obtained in the current studies. In addition, such research would also be useful in determining the degree to which systems reform efforts in Iowa, particularly in Heartland AEA, in which a problem solving approach has been implemented, has resulted in higher quality services to students with autism. For example, the degree of need congruence found in this study in the areas of functional academics, prevocational/vocational, and social/communication is surprisingly positive in light of previous studies that have found little evidence that student need is the basis for individualizing IEPs (Fiedler & Knight, 1986; Reiher, 1992; Smith, 1990; Smith & Simpson, 1989; Tymitz, 1981). Research in this area would provide information regarding the degree to which the problem solving process is

responsible for the consistently higher quality IEPs found for students with autism in central Iowa (Slavens, 1997). Second, replication of this study targeting students with other developmental disabilities in Iowa would provide information regarding whether the findings of this study are specific to students with autism or whether they represent general trends in the provision of special education services to students in Iowa. Third, research involving the observation of IEP meetings, as well as interviews with IEP team members, should be conducted in order to determine factors that affect IEP team decisions regarding specific needs to target within IEPs for students with autism. This would provide some insight regarding the adoption of either a short-term or long-term focus by IEP teams, as well as decision making related to the prioritization of student needs for inclusion in the IEP. Fourth, further investigation regarding the degree to which IEPs guide daily instructional and intervention practices for students with autism, as well as factors that impede this process, is imperative. If IEPs are not being used to drive the provision of educational services for individuals with autism or for students with other disabilities, high quality IEPs would provide no information regarding the actual quality of special education programs. More importantly, this would call into serious question the overall utility of the IEP process, as well as special education in general. Finally, longitudinal research should also be conducted regarding the long-term outcomes of students with autism to determine whether the IEP process is actually facilitating student growth as intended under IDEA 1997 (P. L. 105-17). Specifically, this research should examine the effect of the quality of special education services on adult outcomes for individuals with autism. This information would be useful for IEP teams in making decisions regarding when and if it is appropriate to take a more long-term focus in the educational programs of students with autism. However, if the use of quality IEPs does not result in positive adult outcomes, a reexamination of the IEP process and special education for students with autism will be needed.

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CHAPTER 4. GENERAL CONCLUSIONS

This section is organized into four sections. The first section contains a general discussion regarding the results of the current study. Directions for future research are presented in section two. In section three, implications for practice are delineated. Section four contains concluding comments.

General Discussion

The current study is an extension of preliminary research conducted in the mid-1990s (Slavens, 1997) to examine special education programming for students with autism. The purpose of this study was to collect information regarding the degree to which the adaptive behavior needs of individuals with autism are addressed within their educational programs, the extent to which these programs guide daily instructional activities, and factors that affect whether or not adaptive behavior needs are targeted. Results of this study are somewhat mixed. For example, the adaptive behavior needs of students with autism in this study were typically found to be addressed within their educational programs, providing some information to suggest that these students are receiving special education services that have been individualized to meet each individual's unique needs. However, this finding varied significantly by area of need. Specifically, while students' needs in the areas of functional academics, prevocational/vocational, and social/communication were typically addressed within their educational programs, the needs that put these individuals at significant risk for dependency and poor adult outcomes, including independent functioning and challenging behaviors, were typically not addressed.

Despite the fact that students' needs were typically addressed within their educational programs, results indicated that individualized programs may not have a significant influence on daily instructional activities. In fact, students who had their needs addressed within their educational program typically spent the same amount of time engaged in domain-specific adaptive behavior activities as students whose needs were not addressed. This finding was consistent across the domains of functional academics, prevocational/vocational, and social/communication. Conversely, having independent functioning needs addressed within educational programs appears to have a significant impact on daily instructional activities.

Specifically, results indicated that when independent functioning needs were actually addressed within students' educational programs, students spent significantly more time engaged in independent functioning instructional activities than students whose needs were not addressed. Interestingly, this implies that the adaptive behavior needs that are most frequently overlooked by IEP teams can have a significant impact on daily instructional activities when they are targeted within the educational programs of students with autism.

While a wide variety of factors were found to influence whether or not the adaptive behavior needs of students with autism were addressed within their educational programs, the primary findings of this line of inquiry were somewhat troubling. For instance, results indicated that a lack of student need was typically not the primary reason why specific IEP goals were not written. In fact, it appears that IEP teams make comparisons between areas of need and prioritize those to be included, based on which areas are deemed most important. However, it appears that IEP teams may be biased toward prioritizing academic needs over the needs that put students with autism at risk for poor adult outcomes, such as independent functioning needs and challenging behaviors. In addition, despite reform efforts related to the implementation of the problem solving process in central Iowa schools, within-student factors were identified most frequently by teachers as the primary factor that interfered with their ability to address student adaptive behavior needs, representing nearly 40% of all teacher quotes. These results suggest that many special education teachers that serve students with autism may continue to hold the traditional view that problems lie within the student. Unfortunately, ignoring important environmental factors, as promoted by this assumption, typically results in uninformed intervention and instructional design and, ultimately, poor student outcomes (Ysseldyke & Christianson, 1989).

While some preliminary information is now available regarding adaptive behavior programming for students with autism, many questions still remain regarding the decision making that occurs during the development of IEPs, as well as the impact that IEPs have on daily instructional activities. In addition, these results significantly call into question the degree to students with autism are being provided special education services that are consistent with the intent of the Individuals with Disabilities Education Act (IDEA) 1997 (Public Law 105-17).

Directions for Future Research

Based on the findings of this study, several lines of future research to increase the knowledge base regarding educational programming for students with autism can be identified. First, replication of this study with a greater number of students with autism, both in Iowa and across the country, would provide information regarding the representativeness of the results obtained in the current studies. In addition, such research would also be useful in determining the degree to which systems reform efforts in Iowa, particularly in Heartland AEA, in which a problem solving approach has been implemented, has resulted in higher quality services to students with autism. For example, the degree of need congruence found in this study in the areas of functional academics, prevocational/vocational, and social/communication is surprisingly positive in light of previous studies that have found little evidence that student need is the basis for individualizing IEPs (Fiedler & Knight, 1986; Reiher, 1992; Smith, 1990; Smith & Simpson, 1989; Tymitz, 1981). Research in this area would provide information regarding the degree to which the problem solving process is responsible for the consistently higher quality IEPs found for students with autism in central Iowa (Slavens, 1997). Second, replication of this study targeting students with other developmental disabilities in Iowa would provide information regarding whether the findings of this study are specific to students with autism or whether they represent general trends in the provision of special education services to students in Iowa. Third, research involving the observation of IEP meetings, as well as interviews with IEP team members, should be conducted in order to determine factors that affect IEP team decisions regarding specific needs to target within IEPs for students with autism. This would provide some insight regarding the adoption of either a short-term or long-term focus by IEP teams, as well as decision making related to the prioritization of student needs for inclusion in the IEP. Fourth, further investigation regarding the degree to which IEPs guide daily instructional and intervention practices for students with autism, as well as factors that impede this process, is imperative. If IEPs are not being used to drive the provision of educational services for individuals with autism or for students with other disabilities, high quality IEPs would provide no information regarding the actual quality of special education programs. More importantly, this would call into serious question the overall utility of the IEP process, as well

as special education in general. Finally, longitudinal research should also be conducted regarding the long-term outcomes of students with autism to determine whether the IEP process is actually facilitating student growth as intended under IDEA 1997 (P. L. 105-17). Specifically, this research should examine the effect of the quality of special education services on adult outcomes for individuals with autism. This information would be useful for IEP teams in making decisions regarding when and if it is appropriate to take a more long-term focus in the educational programs of students with autism. However, if the use of quality IEPs does not result in positive adult outcomes, a reexamination of the IEP process and special education for students with autism will be needed.

Implications for Practice

The results of this study have several important implications for practice. First, IEP teams need to place greater emphasis on the assessment and subsequent educational programming for the independent functioning and behavioral needs of students with autism. The presence of such needs have been shown to consistently put individuals with developmental disabilities, including autism, at increased risk for dependence and poor outcomes in adulthood (Felce & Emerson, 2001; Lucyshyn, Olson, & Horner, 1995; McGrew, Bruininks, & Thurlow, 1992; Wacker, et al., 1983; Walker & Calkins, 1986). It is essential that IEP teams serving these students understand the importance of addressing these skills, as well as the significant risks that accompany decisions not to address these needs. To facilitate the long-term inclusion of individuals with autism in the community, it is imperative that educators and related service personnel address independent functioning deficits and challenging behaviors within the special education programs of individuals with autism. Second, efforts need to be made to increase the engagement of students with autism in instructional activities across the school day. Results of this study suggest that, on average, students with autism spend nearly 50% of the school day either not engaged or receiving no instruction. A variety of strategies have been validated for increasing the opportunity that students with developmental disabilities, including autism, have to practice skills. These strategies involve systematically embedding instruction in routine, planned, and child-initiated activities (Bricker, Pretti-Frontczak, & McComas, 1998; Giangreco, Cloninger, & Iverson, 1993). To facilitate greater engagement, it is crucial that educators take advantage of

these strategies in programming and intervening with the adaptive behavior needs of students with autism. Third, university training programs for both teachers and related service providers need to promote the use of the problem solving process for use with all special education students. The results of this study suggest that, despite reform efforts, traditional special education practices may continue to dominate the provision of services to students with autism. It is, therefore, imperative that all educational professionals develop the skills to functionally assess the needs of students with autism in order to design and implement interventions that have a high probability of facilitating student success. University faculty must promote the development of IEPs based on functional assessment information that can guide daily instructional practices, as well as the use of research-based interventions. It is also essential that educators come to value progress monitoring technology for the feedback it provides regarding the effectiveness of intervention. Fourth, improvements in the delivery of informational and consultative support services to general and special education teachers is also critical. Students with autism present unique challenges to educators. The results of this study suggest that many teachers do not feel that they have adequate knowledge to identify and implement appropriate intervention strategies to address the needs of these students. In order to facilitate the provision of appropriate educational services to these students and, ultimately, improve their long-term functioning, school psychologists and other related service providers must provide higher levels of support and training to teachers and other school staff who serve individuals with autism. This support should include not only information regarding the characteristics of autism and research-based intervention strategies, but also assistance and training in individualizing and implementing such interventions. To promote the use of research-based practice, it is also essential that practitioners assume a "hands-on" approach, when necessary, to model the use of such interventions in their training of teachers and school staff.

Conclusions

Considerable advances have been made in the treatment and education of individuals with autism, since the discover of this disorder in 1943 by Leo Kanner. However, the long-term prognosis for individuals within this population remain poor, despite that fact that special education services have been mandated for students with autism for over 25 years.

Currently, no information is available regarding the impact that quality special education services can have in mediating the negative effects that adaptive behavior deficits and challenging behaviors have on the adult functioning and independence of individuals with autism. However, preliminary findings indicate that these needs are typically not addressed within special education programs for students with autism. Until we, as educators, take on the challenge of appropriately addressing some of the most significant needs presented by students with autism, as mandated by IDEA 1997, the outlook for many individuals within this population remains bleak.

APPENDIX A:
DIAGNOSTIC CRITERIA FOR AUTISTIC DISORDER

DSM-IV Diagnostic Criteria for Autistic Disorder

A. A total of six (or more) items from (1), (2), and (3) with at least two from (1), and one each from (2) and (3).

(1) **qualitative impairment in social interaction**, as manifested by at least two of the following:
   (a) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction
   (b) failure to develop peer relationships appropriate to developmental level
   (c) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)
   (d) lack of social or emotional reciprocity

(2) **qualitative impairment in communication**, as manifested by at least one of the following:
   (a) delay in, or total lack of, development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
   (b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
   (c) stereotyped and repetitive use of language or idiosyncratic language
   (d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

(3) **restricted repetitive and stereotyped patterns or behavior, interests, and activities**, as manifested by at least one of the following:
   (a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
   (b) apparently inflexible adherence to specific, nonfunctional routines or rituals
   (c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole body movements)
   (d) persistent preoccupation with parts of objects

B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.

C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegration Disorder.

APPENDIX B:
IOWA STATE UNIVERSITY'S HUMAN SUBJECTS APPROVAL FORM

Information for Review of Research Involving Human Participants
Iowa State University

(please type and use the attached instructions for completing this form)

1. Title of project: Promoting the adaptive behavior skills of students with autism: Gauging educational programming and services

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human participants are protected. I will report any adverse reactions to the committee. Additions to or changed in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Stacy S. Stevens		13 March 1998
Typed Name of Principal Investigator	Signature of Principal Investigator	Date
Psychology	W112 Lagomarcino Hall	
Department	Campus Address	
515/294-8794		
Phone Number to Report Results		

GRADUATE COLLEGE APR 1 0 1998

3. Signatures of other investigator | Relationship to Principal Investigator | Date

Carla A. Peterson — Co-Major Professor — 13 March 1998

4. Principal Investigator(s) [check all that apply]:

_____Faculty _____Staff __X__Graduate Student _____Undergraduate Student

5. Project [check all that apply]:

_____Research __X__Thesis or Dissertation _____Class Project _____Independent study (490,590, Honors)

6a. Number of Participants [complete all that apply]:

__60__#Adults, Non-Students _____# ISU Students __35__# Minors Under 14 __5__Other (explain) # Students 18-21

__10__# Minors 14-17

*these are estimates of the number of subjects within each category

In the space below, specify any **special characteristics** (e.g., age range, sex, handedness) of the sample. If the sample is restricted to certain characteristics, justify the restrictions.

Subjects in this study will include school-aged students with autism from central Iowa and their parents, as well as the educator who is primarily responsible for the Individualized Education Program (IEP) for each participating student. Student participants will be restricted to individuals with autism. Currently, no information is available in the professional literature regarding the quantity or quality of educational programming designed to address the adaptive behavior needs of students in this population. Because of the challenge individuals within this population pose to educators, educational research targeting this population is greatly needed. Educators participating in this study will be limited to those individuals who hold primary responsibility for the IEP of each participating student, because these individuals possess the greatest knowledge of students' educational programs and team decision making underlying the development of such programs.

Last name of principal investigator Stevens .

6b. Describe how and by whom participants will be contacted and what inducements will be involved.

Lists of students with autism in central Iowa will be obtained from Heartland Area Education Agency (AEA) 11 and the Des Moines Public Schools after completion of agency research review processes. Fifty students with autism who meet the criteria for inclusion in this study will be randomly selected (stratified by age) from these lists. The school district each potential subject attends will be contacted via telephone to obtain consent for conducting research within the district. Parents of these students will be sent a description of the study and an informed consent form via the mail. The consent form will include a place for the students to sign and give their consent to participate. Parents will be given the choice of whether or not this is appropriate for their child. While students will be observed at school, no direct contact will be made with students. Educators responsible for the IEP of each participating student will be sent a letter describing the study and two survey instruments in the mail. Educators will also be contacted via the telephone to schedule classroom observations.

7. Please describe a brief description of proposed research involving human participants. Describe the **Procedure** in a clear, temporally-ordered narrative from the participant's perspective. Begin with the first contact between the researchers and the participants and describe what the participants are told, what they do, and so on, throughout the entire study. How much time will each participant invest in his/her participation? **Data-gathering survey instruments must be attached as an addendum.** If they have not been completed, examples may be submitted and the instrument should be submitted after it is completed and use additional page(s) if needed (**Please do not send research, thesis, or dissertation proposals**):

Parent Participants: Participating parents will be sent the Adaptive Behavior Attitudes Survey (ABAS) to complete in early September, 1998. The ABAS will be accompanied by a brief letter regarding the purpose of the instrument, the approximate amount of time it will take to complete (30 minutes), and instructions for completing the ABAS. This letter will also reiterate the voluntary nature of their participation in the study and steps that will be taken to assure confidentiality of the information. The ABAS is divided into two sections. Section 1 of the ABAS asks respondents to rate on a 6-point Likert-type scale the degree to which they agree/disagree with 24 statements regarding several domains of adaptive behavior and adaptive behavior programming. Section 2 of the ABAS asks respondents to indicate their attitudes regarding the most appropriate setting(s) (home, school, community) for intervening with various specific adaptive behavior needs of students with autism, as well as their attitudes regarding the optimal time periods (preschool, elementary, middle school, high school) in which interventions should be implemented to address various specific adaptive behavior needs of students with autism. Participating parents will also be contacted via telephone in early September, 1998 by research assistants to schedule an in-person adaptive behavior interview (the Comprehensive Test of Adaptive Behavior/CTAB). Parents will be informed of the amount of time required to complete the CTAB (1 to 1 1/2 hour) and will again be informed of the voluntary nature of their participation and assured of the confidentiality of the information they will provide. During September/October, 1998 research assistants will interview participating parents via the CTAB at a location and time that is most convenient for the parent(s). Parents will be interviewed via the CTAB again in April/May, 1999. Similar steps will be taken to schedule and complete interviews at this time.

Student Participants: The special education records of participating students will be reviewed by research assistants via the Educational Record Review Protocol (ERRP) in October/November, 1998. Participating students will be observed by research assistants at school three times between January and May, 1999 for 120 minutes per observation. The Adaptive Behavior Observation System (ABOS) will be used by research assistants to collect information regarding the amount of time students with autism are engaged in various adaptive behavior instructional activities at school. No direct contact will be made with participating students and data collection procedures will not require students to be absent from any instructional activities.

Educator Participants: Participating educators will be sent a description of the study, the Adaptive Behavior Attitudes Survey (ABAS), and the Adaptive Behavior Program Status (ABPS) in September, 1998. A letter will also be sent describing the purpose each instrument, the amount of time required to complete the instruments (45 to 60 minutes), and directions for completing the surveys. In addition, the letter will describe the voluntary nature of his/her participation and steps that will be taken to assure confidentiality of the information he/she provides. The teacher-form of the ABAS is divided into three sections. Section 1 of the ABAS asks respondents to rate on a 6-point Likert-type scale the degree to which they agree/disagree with 24 statements regarding several domains of adaptive behavior and adaptive behavior programming. Section 2 of the ABAS asks respondents to indicate their attitudes regarding the most appropriate setting(s) (home, school, community) for intervening with various specific adaptive behavior needs of students with autism, as well as their attitudes regarding the optimal times periods (i.e., preschool, elementary, middle school, high school) in which

Last name of principal investigator Slavens

interventions should be implemented to address various specific adaptive behavior needs of students with autism. Section 3 of the ABAS asks respondents to rate on a 6-point Likert-type scale their beliefs regarding the ease/difficulty of designing and implementing interventions to address various specific adaptive behavior needs of students with autism. The ABPS is divided into two sections. Section 1 of the ABPS asks teachers to indicate the areas in which IEP goals were not written for the target student and to indicate the primary reason underlying the team's decision not to write an IEP goal in that area. The second section of the ABPS asks teachers to identify areas in which specific interventions are being implemented to address the target student's needs. Teachers will be asked to describe specific interventions in detail or to provide a copy of intervention documentation. Participating educators will also be contacted by research assistants via the telephone three times from December, 1998 to May, 1999 to schedule classroom observation of target students. At these times, research assistants will refamiliarize educators with the purpose of the observations. Research assistants will visit the classroom of each students three times during January to May, 1999 to conduct classroom observations via the ABOS. Each observation will take approximately 120 minutes.

Describe how the participants will be debriefed. Attach a copy of the debriefing. See Experimenter Responsibilities on the "Instructions for the Use of the Undergraduate Research Participation Pool."

8. Informed Consent: __X__ Signed informed consent will be obtained (attach a copy of your form).
* parent and student participants

__X__ Modified informed consent will be obtained (see instructions, item 8).
* educator participants

_____ Not applicable to this project.

8b If the following information is not on the Posting Form or the Consent Form, please attach a copy:
Letter or written statement to participants indicating clearly:
a) purpose of the research
b) the use of any identifier codes (names, #'s), how they will be used, and when they will be removed
c) an estimated time needed for participation in the research and the place
d) if applicable, location of the research activities
e) how you will assure confidentiality
f) in a longitudinal study, note when and how you will contact participants later
g) participation is voluntary; nonparticipation will not affect evaluations of the participant

Last name of principal investigator Stavens

9. Confidentiality of Data: Describe below the methods to be used to ensure the confidentiality of data obtained (see instructions):

Subjects in this study will be assigned ID numbers at the beginning of the project. All data collection protocols will be appropriately coded with these ID numbers to ensure confidentiality. All data collection protocols will be kept in a locked filing cabinet in an office at Richard's House, an office building located on Iowa State University campus. In addition, all information will be reported in such a way that it is anonymous. For example, summaries of group data will be reported.

10. What risks or discomforts will be part of the study? Will participants in the research be placed at risk or incur discomfort? Describe any risks to participants and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to participants' dignity and self-respect as well as psychological or emotional risks, see instructions, item 11):

No risks or discomforts are anticipated for participating parents or educators. To minimize the discomfort of subjects during observations, several steps will be taken. First, no contact will be made with participating students prior to or during the observations. Second, educators will be asked to inform the class prior to data collection that someone will be visiting the classroom to see what kinds of things they are doing. Students in the classroom will not be informed of the specific purpose of the observation nor the target of the observations. Since educational personnel frequently visit classrooms to conduct observations, the observations conducted for this project will not be unusual.

11 **CHECK ALL** of the following that apply to your research:

- ☐ A. Medical clearance necessary before participants can participate.
- ☐ B. Administration of substances (foods, drugs, etc.) to participants.
- ☐ C. Physical exercise or conditioning for participants.
- ☐ D. Samples (blood, tissue, etc.) from participants.
- ☐ E. Administration of infectious agents or recombinant DNA.
- ☐ F. Deception of participants.
- ☒ G. Participants under 14 years of age **and/or** ☒ Participants 14-17 years of age.
- ☐ H. Participants in institutions (nursing home, prisons, etc.).
- ☒ I. Research must be approved by another institution or agency (attach letter of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments).

Items A-E	Describe the procedures and note the proposed safety precautions being taken.
Items D-E	The principal investigator should send a copy of this form to Environmental Health and Safety, 118 Agronomy Lab for review.
Item F	Describe how participants will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to participants.
Item G	For participants under the age of 14, indicate informed consent from parents or legally authorized representatives, as well as from participants, will be obtained.
Items H-I	Specific agency or institution that must approve the project. If participation in any outside agency or institution are involved, approval must be obtained prior to the beginning of the research, and the letter of approval should be filed.

Item G: Parents of students with autism selected for participation in this study will be sent a description of the study and an informed consent form via the mail. An informed consent from will also be included for each student to sign. Parents will be given the choice to decide whether or not this is appropriate for their child.

Item I: This project must be approved by Heartland Area Education Agency (AEA) 11, the Des Moines Public Schools (DMPS), and 25-45 school districts. The principal investigator is currently in the process of obtaining approval from these agencies and, per a verbal arrangement, will contact Pat Keith and other necessary personnel at Iowa State University, including the Department of Psychology Human Subjects Committee in writing, when approval has been obtained from these agencies and school districts. No data collection will occur until permission has been arranged with these agencies and the appropriate persons at ISU have been contacted.

Last name of principal investigator Stevens

12. Anticipated dates for contact with participants:

First Contact	Last Contact
8/01/98	5/30/99
Month/Day/Year	Month/Day/Year

13. If applicable, anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased.

7/1/00
Month/Day/Year

14. Signature of Departmental Executive Officer | Date | Department or Administrative Unit

[signature] | 4/16/98 | [signature]

CHECKLIST FOR ATTACHMENTS: PLEASE CHECK ALL THAT ARE ATTACHED

☒ Letter and/or posting form and/or telephone script used to solicit participants that clearly indicates:
- a) purpose of the research
- b) the use of any identifier codes (names, #'s), how they will be used, and when they will be removed
- c) an estimated time needed for participation in the research and the place
- d) if applicable, location of the research activities
- e) how you will assure confidentiality
- f) in a longitudinal study, note when and how you will contact participants later
- g) participation is voluntary; nonparticipation will not affect evaluations of the participant

☒ Consent form, if applicable.

☒ Letter of approval for research from cooperating organizations or institutions, if applicable.
* Principal investigator is in the process of obtaining approval from Heartland Area Education Agency and the Des Moines Public School District. When approval has been obtained from these agencies, copies of written approval will be provided to appropriate Iowa State University personnel, including the Department of Psychology Human Subjects Committee. In addition, approval to conduct research will be sought from approximately 25–45 additional school districts after potential subjects have been identified. The Iowa State University Human Participants Review Committee chair will be contacted upon receipt of approval from each school district. No data collection will occur until approval has been obtained from the school district and the appropriate person(s) at Iowa State University have been contacted.

☒ Data gathering instruments.

15. **Decision of the University Human Participants Review Committee:**

X Project Approved _____ Project Not Approved _____ No Action Required

Patricia M. Keith | 4/16/98 | [signature]

Name of Committee Chairperson | Date | Signature of Committee Chairperson

APPENDIX C:
PARENT CONSENT LETTER (HEARTLAND AEA 11)

Date

Dear Parent:

This fall/spring a dissertation research project, Project PASSAGES, is being conducted within the Departments of Psychology and Human Development and Family Studies at Iowa State University. The U.S. Office of Special Education and Rehabilitation Services is funding this project. The purpose of this project is to learn more about the needs of children with autism and how to better meet these needs through quality educational programming. Specifically, the focus of this project will be to identify the needs of students with autism and document educational interventions being implemented to meet those needs. A number of students with autism and their families in central Iowa were randomly selected to be included in this study. Through this process, you and your child were selected to be a part of this study.

How Will I Be Involved? We are seeking your permission to participate in this study and to allow your child to be included in this study. Participation in this study would involve completing 1 structured interview regarding your child's needs with a project research assistant. This interview would take place between XX and XX 1999/2000. The interview would be conducted at a time and place that was most convenient for you and would take approximately 1 to 1 1/2 hours to complete. In addition, you would be sent a rating scale regarding various needs typically associated with autism to complete at your convenience between XX and XX 1999/2000. This rating scale would take approximately 30 minutes to complete. If you choose to participate you will be given $20 after completion of all data collection activities in appreciation of your time.

How Will My Child and the Teacher Be Involved? If your child's teacher also agrees to participate in this project, your child would be observed three times at school from XX through XX 1999/2000 for approximately 120 minutes. The purpose of these observations would be to document the activities that your child is engaged in at school. In addition, your child's special education file/records would be reviewed to gather demographic information, as well as general information regarding your child's special education program. Your child's teacher would also be interviewed regarding the instructional activities that are being implemented at school for your child.

Confidentiality: All information gathered for this project will be kept confidential. Neither your child's name, your name, your child's teacher's name, nor any identifying information about your child or your family would appear on any report of the study. All information regarding this study will be reported in such a way that is anonymous. For example, summaries of group data will be presented. In addition, all surveys, observation forms, and interview forms collected for this study will be kept in a locked filing cabinet at Iowa State University. This project will not interfere with your child's learning in any way, and your choice to participate or to decline participation in this study will not affect your child's

current or future eligibility for special education services. If you agree to participate, you may withdraw from the study at any time without affecting your relationship with your school district or Iowa State University.

We hope that you will agree to participate and allow your child to participate in this study, as we believe the information learned will improve educational experiences for many children, parents, and teachers. Please fill out one of the following form indicating your decision whether or not to participate in this study. In addition, if you feel that it is appropriate, we have also include a place for your child to sign his name to indicate her permission to participate in this study. If you have further questions, please contact Stacy Slavens at 515/294-8794 or Dr. Carla Peterson at 515/294-4898.

Thank you for your time.

Sincerely,

Stacy Slavens, Ed.S.
Graduate Student
Iowa State University

Carla Peterson, Ph.D.
Associate Professor
Iowa State University

AGREEMENT TO PARTICIPATE IN PROJECT PASSAGES

I have reviewed the description and requirements of Project PASSAGES being conducted at Iowa State University. I agree to participate in this research study and allow researchers to review my child's special education file/records. I understand that my participation is voluntary and that I may withdraw my consent to participate at any time without affect my or my child's relationship with our school district or Iowa State University. I also understand that the necessary steps will be taken to assure the confidentiality of all information collected regarding my child and my family.

_____

Child's Name (please print)

_____

Signature of Child (if appropriate)

_____

Name(s) of Parent(s) or Legal Guardian (please print)

_____

Signature(s) of Parent(s) or Legal Guardian

Home Phone Number:_____

My child is in _____ grade at _____ school in _____

school district. My child's classroom teacher's name is _____.

The teacher that is primarily responsible for my child's IEP is _____.

The best times to contact me to schedule the interview are:

Days **Times**

DECISION AGAINST PARTICIPATING IN PROJECT PASSAGES

I have reviewed the description and requirements of Project PASSAGES being conducted at Iowa State University and have decided not to participate in this research study. I understand that my participation is voluntary and that my decision will not affect my relationship with my school district or Iowa State University. I also understand that my child's teacher will not be contacted to be included in this research project.

_____

Child's Name (please print)

_____

Signature of Child (if appropriate)

_____

Name(s) of Parent(s) or Legal Guardian (please print)

_____

Signature(s) of Parent(s) or Legal Guardian

APPENDIX D:

TEACHER CONSENT LETTER (HEARTLAND AEA 11)

Date

Dear Teacher:

As you may be aware, this fall and spring a research project, Project PASSAGES, is being conducted by the Departments of Psychology and Human Development and Family Studies at Iowa State University. The U.S. Office of Special Education and Rehabilitation Services is funding this project. The purpose of this project is to learn more about the needs of children with autism and how to better meet these needs through quality educational programming. Specifically, the focus of this project will be to identify the needs of students with autism and document educational interventions being implemented to meet those needs. A number of students with autism and their families in central Iowa were randomly selected to be included in this study. Your student, XX, and his/her family, as well as the XX Community School District, have agreed to participate in this study. To obtain comprehensive information about the students participating in this study, we feel that it is imperative to gather information and input from each student's teacher.

How Will I Be Involved? As part of this study we are asking the teacher who holds primary responsibility for each student's IEP to complete 1 interview with a project research assistant, as well as 2 brief surveys. If you believe that another teacher more appropriately reflects this role, please pass this letter onto him/her. The purposes of these measures are to gather information regarding your student's educational program, team decision making underlying the design of this program, and specific instructional activities that are being implemented at school to meet your student's needs. In addition, we are interested in teachers' beliefs regarding the importance of various skills for students with autism and the difficulty of implementing interventions to meet the needs of these students. The interview would take place between XX and XX 1999/2000. The interview would be conducted at a time and place that was most convenient for you and would take approximately 45 minutes to complete. In addition, you would be sent the 2 rating scale to complete at your convenience between XX and XX 1999/2000. These rating scales would take approximately 45 minutes to complete. If you choose to participate you will be given a $20 stipend after completion of all data collection activities in appreciation of your time.

How Will My Student Be Involved? As part of this project, your student will be also be observed by research assistants from Iowa State University three times at school from XX through XX 1999/2000 for approximately 120 minutes per observation. The purpose of these observations is to document the activities that your student is engaged in at school.

Confidentiality: All information gathered for this project will be kept confidential. Neither your student's name, your name, nor any identifying information about your student or yourself will appear on any report of the study. All information regarding this study will be reported in such a way that is anonymous. For example, summaries of group data will be presented. In addition, all surveys and observation forms collected for this study will be kept

in a locked filing cabinet at Iowa State University. This project would not interfere with your student's learning in any way. Your participation in this study is completely voluntary. If you agree to participate in this study, simple return the enclosed letter indicating your decision to participate. If you agree to participate, you may withdraw from the study at any time without affecting your relationship with your school district or Iowa State University. If you do not wish to participate, please return the enclosed letter and indicate that you do not wish to participate. If you decide not to participate in this study, your student will not be included in this project and you will not be contacted again. In order to gather information regarding which students and teachers will be participating in this study in a timely manner, we will be sending a second letter to teachers who have not responded in approximately 2 weeks, followed by a telephone call by Ms. Slavens. Your decision whether or not to participate will not be reported to your building principal or immediate supervisor.

We appreciate your participation in this project, and believe the information learned from this study will improve educational experiences for many children, parents, and teachers. If you have further questions, please contact Stacy Slavens at 515/294-8794 or Dr. Carla Peterson at 515/294-4898.

Thank you for your time.

Sincerely,

Stacy Slavens, Ed.S.
Graduate Student
Iowa State University

Carla Peterson, Ph.D.
Associate Professor
Iowa State University

AGREEMENT TO PARTICIPATE IN PROJECT PASSAGES

I have reviewed the description and requirements of Project PASSAGES being conducted at Iowa State University. I agree to participate in this research study. I understand that my participation is voluntary and that I may withdraw my consent to participate at any time without affect my relationship with the school district or Iowa State University. I also understand that the necessary steps will be taken to assure the confidentiality of all information collected regarding myself, as well as my student and his/her family.

_____

Child's Name (please print)

_____

Name of Teacher (please print)

_____

Signature of Teacher

The best times to contact me for scheduling the interview are:

DAYS	TIMES

DECISION AGAINST PARTICIPATING IN PROJECT PASSAGES

I have reviewed the description and requirements of Project PASSAGES being conducted at Iowa State University and have decided not to participate in this research study. I understand that my participation is voluntary and that my decision will not be reported to my building principal and will not affect my relationship with my school district or Iowa State University. I also understand that my student will not be included in this research project.

_____

Child's Name (please print)

_____

Name of Teacher (please print)

_____

Signature of Teacher

APPENDIX E:

PARENT CONSENT LETTERS (ARROWHEAD AEA 5 AND AEA 6)

Date

Dear Parent:

This fall/spring a dissertation research project, Project PASSAGES, is being conducted within the Departments of Psychology and Human Development and Family Studies at Iowa State University. The U.S. Office of Special Education Programs is funding this project. The purpose of this project is to learn more about the needs of children with autism and how to better meet these needs through quality educational programming. Specifically, the focus of this project will be to identify the needs of students with autism and document educational interventions being implemented to meet those needs. A number of school districts in central Iowa who serve students with autism were selected to be included in this study. Your school district has agreed to participate in this study and to send this consent letter to you. To ensure your confidentiality, your school district has not released your names to us.

How Will I Be Involved? We are seeking your permission to participate in this study and to allow your child to be included in this study. Participation in this study would involve completing 1 structured interview regarding your child's needs with a project research assistant. This interview would take place between XX and XX 1999/2000. The interview would be conducted at a time and place that was most convenient for you and would take approximately 1 to 1 1/2 hours to complete. In addition, you would be sent a rating scale regarding various needs typically associated with autism to complete at your convenience between XX and XX 1999/2000. This rating scale would take approximately 30 minutes to complete. If you choose to participate you will be given $20 after completion of all data collection activities in appreciation of your time.

How Will My Child and the Teacher Be Involved? If your child's teacher also agrees to participate in this project, your child would be observed 2-3 times at school between XX and XX 1999/2000 for approximately 120 minutes. The purpose of these observations would be to document the activities that your child is engaged in at school. In addition, your child's special education file/records would be reviewed to gather demographic information, as well as general information regarding your child's special education program. Your child's teacher would also be interviewed regarding the instructional activities that are being implemented at school for your child.

Confidentiality: All information gathered for this project will be kept confidential. Neither your child's name, your name, your child's teacher's name, nor any identifying information about your child or your family would appear on any report of the study. All information regarding this study will be reported in such a way that is anonymous. For example, summaries of group data will be presented. In addition, all surveys, observation forms, and interview forms collected for this study will be kept in a locked filing cabinet at Iowa State University. This project will not interfere with your child's learning in any way, and your choice to participate or to decline participation in this study will not affect your child's

current or future eligibility for special education services. If you agree to participate, you may withdraw from the study at any time without affecting your relationship with your school district or Iowa State University.

We hope that you will agree to participate and allow your child to participate in this study, as we believe the information learned will improve educational experiences for many children, parents, and teachers. If you agree to participate in this study, please fill out and sign the enclosed form indicating your decision to participate in this study. In addition, if you feel that it is appropriate, we have also include a place for your child to sign his name to indicate his/her permission to participate in this study. If you have further questions, please contact Stacy Slavens at 515/294-8794 or Dr. Carla Peterson at 515/294-4898.

Thank you for your time.

Sincerely,

Stacy Slavens, Ed.S.
Graduate Student
Iowa State University

Carla Peterson, Ph.D.
Associate Professor
Iowa State University

AGREEMENT TO PARTICIPATE IN PROJECT PASSAGES

I have reviewed the description and requirements of Project PASSAGES being conducted at Iowa State University. I agree to participate in this research study and allow researchers to review my child's special education file/records. I understand that my participation is voluntary and that I may withdraw my consent to participate at any time without affect my or my child's relationship with our school district or Iowa State University. I also understand that the necessary steps will be taken to assure the confidentiality of all information collected regarding my child and my family.

_____

Child's Name (please print)

_____

Signature of Child (if appropriate)

_____

Name(s) of Parent(s) or Legal Guardian (please print)

_____

Signature(s) of Parent(s) or Legal Guardian

Home Phone Number:_____

Home Address:_____

_____

My child is in _____ grade at _____ school in _____

school district. My child's classroom teacher's name is _____.

The teacher that is primarily responsible for my child's IEP is _____.

The best times to contact me to schedule the interview are:

Days **Times**

DECISION AGAINST PARTICIPATING IN PROJECT PASSAGES

I have reviewed the description and requirements of Project PASSAGES being conducted at Iowa State University and have decided not to participate in this research study. I understand that my participation is voluntary and that my decision will not affect my relationship with my school district or Iowa State University. I also understand that my child's teacher will not be contacted to be included in this research project.

_____

Child's Name (please print)

_____

Signature of Child (if appropriate)

_____

Name(s) of Parent(s) or Legal Guardian (please print)

_____

Signature(s) of Parent(s) or Legal Guardian

APPENDIX F:

TEACHER CONSENT LETTER (ARROWHEAD AEA 5 AND AEA 6)

Date

Dear Teacher:

As you may be aware, this fall and spring a research project, Project PASSAGES, is being conducted by the Departments of Psychology and Human Development and Family Studies at Iowa State University. The U.S. Office of Special Education and Rehabilitation Services is funding this project. The purpose of this project is to learn more about the needs of children with autism and how to better meet these needs through quality educational programming. Specifically, the focus of this project will be to identify the needs of students with autism and document educational interventions being implemented to meet those needs. A number of students with autism and their families in central Iowa were randomly selected to be included in this study. Your student, XX, and his/her family, as well as the XX Community School District, have agreed to participate in this study. To obtain comprehensive information about the students participating in this study, we feel that it is imperative to gather information and input from each student's teacher.

How Will I Be Involved? As part of this study we are asking the teacher who holds primary responsibility for each student's IEP to complete 1 interview with a project research assistant, as well as 2 brief surveys. If you believe that another teacher more appropriately reflects this role, please pass this letter onto him/her. The purposes of these measures are to gather information regarding your student's educational program, team decision making underlying the design of this program, and specific instructional activities that are being implemented at school to meet your student's needs. In addition, we are interested in teachers' beliefs regarding the importance of various skills for students with autism and the difficulty of implementing interventions to meet the needs of these students. The interview would take place between XX and XX 1999/2000. The interview would be conducted at a time and place that was most convenient for you and would take approximately 45 minutes to complete. In addition, you would be sent the 2 rating scale to complete at your convenience between XX and XX 1999/2000. These rating scales would take approximately 45 minutes to complete. If you choose to participate you will be given a $20 stipend after completion of all data collection activities in appreciation of your time.

How Will My Student Be Involved? As part of this project, your student will be also be observed by research assistants from Iowa State University three times at school from XX through XX 1999/2000 for approximately 120 minutes per observation. The purpose of these observations is to document the activities that your student is engaged in at school.

Confidentiality: All information gathered for this project will be kept confidential. Neither your student's name, your name, nor any identifying information about your student or yourself will appear on any report of the study. All information regarding this study will be reported in such a way that is anonymous. For example, summaries of group data will be presented. In addition, all surveys and observation forms collected for this study will be kept

in a locked filing cabinet at Iowa State University. This project would not interfere with your student's learning in any way. Your participation in this study is completely voluntary. If you agree to participate in this study, simple return the enclosed letter indicating your decision to participate. If you agree to participate, you may withdraw from the study at any time without affecting your relationship with your school district or Iowa State University. If you do not wish to participate, please return the enclosed letter and indicate that you do not wish to participate. If you decide not to participate in this study, your student will not be included in this project and you will not be contacted again. In order to gather information regarding which students and teachers will be participating in this study in a timely manner, we will be sending a second letter to teachers who have not responded in approximately 2 weeks, followed by a telephone call by Ms. Slavens. Your decision whether or not to participate will not be reported to your building principal or immediate supervisor.

We appreciate your participation in this project, and believe the information learned from this study will improve educational experiences for many children, parents, and teachers. If you have further questions, please contact Ms. Slavens at 515/233-3038 or Dr. Carla Peterson at 515/294-4898.

Thank you for your time.

Sincerely,

Stacy Slavens, Ed.S.
Graduate Student
Iowa State University

Carla Peterson, Ph.D.
Associate Professor
Iowa State University

AGREEMENT TO PARTICIPATE IN PROJECT PASSAGES

I have reviewed the description and requirements of Project PASSAGES being conducted at Iowa State University. I agree to participate in this research study. I understand that my participation is voluntary and that I may withdraw my consent to participate at any time without affect my relationship with the school district or Iowa State University. I also understand that the necessary steps will be taken to assure the confidentiality of all information collected regarding myself, as well as my student and his/her family.

_____

Child's Name (please print)

_____

Name of Teacher (please print)

_____

Signature of Teacher

The best times to contact me for scheduling the interview are:

DAYS TIMES

DECISION AGAINST PARTICIPATING IN PROJECT PASSAGES

I have reviewed the description and requirements of Project PASSAGES being conducted at Iowa State University and have decided not to participate in this research study. I understand that my participation is voluntary and that my decision will not be reported to my building principal and will not affect my relationship with my school district or Iowa State University. I also understand that my student will not be included in this research project.

_____

Child's Name (please print)

_____

Name of Teacher (please print)

_____

Signature of Teacher

APPENDIX G:
DEFINITIONS OF INSTRUCTIONAL PROGRAM MODELS

INSTRUCTIONAL PROGRAM MODEL DEFINITIONS

Regular Educational Program: An educational program for pupils who are enrolled in a general education curriculum on a full-time basis.

Resource: An educational program for pupils requiring special education who are enrolled in a general education curriculum for a majority of the school day, but who require special education in specific skill areas on a part-time basis. Pupils enrolled in this type of program require special education for a minimal average of 30 minutes per day.

Special Class with Integration: An educational program for pupils requiring special education who have similar educational needs and who can benefit from participating in the general education curriculum in one or more academic subjects with pupils who are not disabled. This program includes provisions for ongoing consultation and demonstration with the pupil's teacher.

Special Class with Little Integration: An educational program for pupils with similar educational needs who require special education, but who can benefit from limited participation in the general education curriculum with pupils who are not disabled.

Special Class-Full Time: An educational program for pupils with similar educational needs who are severely handicapped and whose instructional program is provided by a special education teacher. The pupils are offered opportunities to participate in activities with peers and adults who are not disabled.

Homebound/Hospital Instruction: The unique needs of the pupil necessitate that instruction be provided in the hospital or at home.

APPENDIX H:

CODING DEFINITIONS FOR GENERAL DOMAINS, GENERAL ADAPTIVE BEHAVIOR DOMAINS, AND SPECIFIC ADAPTIVE BEHAVIOR DOMAINS

CODING DEFINITIONS: GENERAL DOMAINS

Academic (e.g., counting, identifying letters, reading, math, written language, English, social studies, maintaining grades in general education classes, functional academics, etc.)

Behavioral (e.g., compliance, verbal and physical aggression, temper tantrums, impulse control, stereotypic movements, etc.)

Communication/Language(e.g., articulation, vocal abuse, fluency, language [i.e., receptive and expressive], vocabulary, linguistic concepts [e.g., big/small, hot/cold, etc.], use of augmentative communication systems, voice tone/loudness)

Daily Living Skills/Self Help (e.g., toileting, dressing, eating, safety, personal hygiene/health, leisure skills, etc.)

Motor(e.g., gross motor [i.e., jumping, throwing, kicking, running], fine/perceptual motor [i.e., drawing, handwriting, grasp patterns, using scissors, tactile discrimination, body awareness], etc.)

Prevocational/Vocational(e.g., attendance, on-task, assignment completion, vocational, career development, survival skills, study skills, independence in school work, organization skills, following routines/schedules, etc.)

Social (e.g., initiating and maintaining interactions, interpersonal relationships, responsibility, adjustment to change, responding to social cues, turn taking, sharing, etc.)

*Modified Version of The Program Evaluation for Procedural and Substantive Efficacy (PEPSE) (Smith, 1987)

CODING DEFINITIONS: GENERAL AND SPECIFIC ADAPTIVE BEHAVIOR DOMAINS

INDEPENDENT FUNCTIONING*. Competencies ranging from basic toileting, feeding, and dressing skills to more complex skills such as traveling independently in the community, consumer skills, use of leisure time, and degree of need for supervision.

Eating: Activities related to the development of eating skills. Examples include oral motor skills related to chewing and swallowing food, trying different types of food, appropriate table manners. Non examples include communication attempts to obtain more food, domestic skills related to eating (e.g., setting the table, clean up), making shopping list or menu, shopping for food, preparing meals.

Toileting: Activities related to the development of toileting skills. Examples include physical act of toileting, wiping self, flushing the toilet, appropriate dressing and undressing related to toileting. Non examples include communication attempts to express the need to use the bathroom, domestic skills related to cleaning the bathroom, replacing toilet paper roll.

Personal Hygiene/Grooming: Activities related to the development of personal hygiene/grooming skills. Examples include bathing, brushing teeth, washing hands, shaving, brushing/combing hair. Non examples include purchasing self-care products (e.g., shampoo, toothbrush).

Dressing: Activities related to the development of dressing skills. Examples include physical act of putting on clothing, tying shoes, zipping coat, buttoning, choosing clothing appropriate for weather conditions. Non examples include purchasing clothing, dressing/undressing associated with toileting, asking for help in zipping or buttoning.

Domestic: Activities related to the development of domestic skills. Examples include household cleaning (e.g., dusting, vacuuming, cleaning the bathroom, washing dishes), doing laundry, folding clothing, making minor household repairs (e.g., changing light bulb), setting the table, making shopping list or menu, cleaning up after meal, taking out garbage, preparing meals.

Independence/Mobility: Activities related to independently navigating home, school, and community environments. Examples include transitioning between activities, asking for directions, following a map, taking the bus.

Leisure: Activities related to the development of leisure skills. Examples include choosing leisure/play activity, engaging in leisure/play activities, hobbies. Non examples include social play skills.

FUNCTIONAL ACADEMICS*. Competencies related to basic, fundamental literacy skills, knowledge of concepts of time and number and other cognitive competencies essential to personal independence and social responsibility.

Preacademics: Activities related to the development of preacademic skills. Examples include learning colors, shapes, letters, numbers, copying, tracing, matching, puzzles.

Basic Reading: Activities related to the development of basic, functional reading skills. Examples include reading fluency, reading comprehension, sight words, reading signs/symbols, reading list of ingredients.

Basic Math: Activities related to the development of basic, functional math skills. Examples include basic facts, completing complex math problems.

Basic Writing: Activities related to the development of basic, functional written language skills. Examples include writing, editing, spelling, punctuation, grammar, taking telephone messages.

Money/Purchasing: Activities related to the development of skills in identifying the value of coins and bills and the use of money in making purchases, as well as budgeting.

Time: Activities related to the development of time skills. Understanding time, using clocks, calendar skills.

PREVOCATIONAL/ VOCATIONAL*. Includes knowledge about careers and work, appropriate attitudes and values concerning careers and work, and specific skills required for successful job performance.

Prevocational: Activities related to basic job skills. Examples include on-task behavior, assignment completion.

Vocational: Activities related to the development of vocational skills. Examples include sorting, knowledge of specific jobs, filling out a job application, specific job skills, interviewing for a job.

SOCIAL/COMMUNICATION*. Competencies related to appropriate attention to other persons, acceptable orientation and posturing, sharing appropriately, expressing feelings in an acceptable fashion, forming friendships, recognition of the needs and feelings of others, avoidance of obnoxious behaviors, situational appropriateness of social behaviors, and improving behavior.

Social Skills: Activities related to the development of appropriate social skills. Examples include initiating social interactions with peers and adults, responding to interactions from peers and adults, appropriate body posture, eye contact, anger management, conversation skills, appropriate play skills such as sharing and cooperation, participating in large/small group activities/games, improving behavior. Non examples include communication skills, decreasing maladaptive behaviors, leisure skills.

Communication: Activities related to the development of communication and language skills. Examples include expressing wants and needs, developing verbal vocabulary, learning communication function (e.g., protesting, requesting). Non examples include social skills.

Challenging Behavior: Activities related to decreasing stereotypic behaviors, overt behaviors that are directed at others or disruptive to others, internalizing behaviors, and/or other atypical or unusual behaviors. Examples include flapping, toe walking, whirling, spinning; aggression, screaming, tantruming, arguing, fighting, biting; anxiety, depression; visual scrutiny, licking, mouthing, rubbing surfaces, picking skin. Non examples include prevocational skills, social skills, communication skills.

MOTOR. Competencies related to appropriate use of gross and fine motor skills

Fine Motor: Activities related to the development of appropriate fine motor skills. Examples include using scissors, grasp patterns, tactile discrimination, handwriting. Non examples include gross motor skills.

Gross Motor: Activities related to the development of gross motor skills. Examples include jumping, throwing, kicking, running, body awareness. Non examples include fine motor skills.

* Modified version of Reschly's (1990) definitions of the four domains of adaptive behavior.

APPENDIX I:

EDUCATIONAL RECORD REVIEW PROTOCOL (ERRP)

BACKGROUND

Student ID #_____AEA/AEA Zone_____

School District_____School Building_____

STUDENT AND PROGRAM DATA

1. Gender_____Male_____Female 2. Birth date_____

3. Date of IEP meeting_____ 4. CA at Mtg.: Yrs_____Mos_____

5. Staffing: **initial** **annual** **restaffing** **3-year reevaluation**

6. Student's **grade level** at beginning of school year_____.

7. Student's **weighting** at beginning of school year_____.

8. Percentage of **time receiving special education services** per week: _____

9.

9. **Primary instructional program** in which student is currently enrolled:_____

   0 = regular education
   1 = resource
   2 = special class with integration
   3 = special class with little integration
   4 = special class-full time
   5 = homebound/hospital instruction

10. Type of **supplemental assistance**:_____

    0 = no aide
    4 = aide less than half day
    7 = aide half day or more, but less than full time
    9 = full-time 1-on-1 aide

11. Amount of **participation with typical peers** per week:_____

0 = 91% - 100%	5 = 41% - 50%
1 = 81% - 90%	6 = 31% - 40%
2 = 71% - 80%	7 = 21% - 30%
3 = 61% - 70%	8 = 11% - 20%
4 = 51% - 60%	9 = 0% - 10%

12. **Restrictiveness of program** (item 9 + item 10 + item 11):_____

13. Amount of **related services:**

	Consult	Direct	#min/wk
Speech			
Counseling			
OT			
PT			
APE			

14. **Diagnosis** of Autism:

_____**Medical**

Date of Evaluation:_____

Grade at Eval_____

CA at Eval: Yrs_Mos_____

Made By:_____Psychiatrist
_____Psychologist
_____Other (Specify):

_____**Educational**

Date of Evaluation:_____

Grade at Eval_____

CA at Eval: Yrs____Mos_____

15. **CARS** score:_____

Date CARS administrated:_____

IEP MEETING INFORMATION

16. **Individuals Present at IEP Meeting:**

_____Autism Resource Team member
_____educational associate
_____educational consultant
_____extended family member(s)
_____friend(s) of family
_____occupational therapist
_____parent(s)/legal guardian(s)
_____physical therapist
_____PNA representative
_____principal/vice principal
_____rep. from community agency
_____school nurse
_____school psychologist
_____social worker
_____speech-language pathologist
_____student
_____teacher (general education-current)
_____teacher (general education-receiving)
_____teacher (special education)
_____work experience coordinator
_____zone coordinator
_____Other (please indicate):

17. **Extent of Participation In:**

Subject/Activity	Reg. Ed.	Modifications	Spec. Ed.	Amount of Time

18. **Modifications for Regular Education Participation:**

APPENDIX J:
ADAPTIVE BEHAVIOR PROGRAM STATUS (ABPS)

Date

Dear Teacher,

Thank you again for agreeing to participate in Project PASSAGES. We believe that it is incredibly important to gather information from teachers to best understand students' educational programs. Enclosed in this packet you will find a 1-page sheet titled "Demographic Information" and a 2-page questionnaire. The purpose of the demographic information sheet is to learn more about you and your educational background. The purpose of the questionnaire is to gather information regarding the team decision making that went into the creation of your student's current Individualized Educational Program (IEP). Remember that all information that you provide on the demographic information sheet and the questionnaire will be kept strictly confidential.

When filling out the questionnaire, you may want to have the student's current IEP handy. First, review the various skill areas listed at the top of each page. Second, for each skill area indicate whether your student has an IEP goal in that area or not. You can do this by placing an X in the 2nd row if "YES" your student does have an IEP goal in that area or in the 10th row if "NO" your student does not have an IEP goal in that area. Definitions of each skill area have been included in case you are unsure about which area represents a specific IEP goal. Third, for each skill area place an X in the box that represents the primary reason why an IEP goal was written or why an IEP goal was not written. If the primary reason is not listed, please check the "OTHER" box and write in the reason on the space provided on the back of the page. You can also use the back of the page if the reason an IEP goal was not written was because the need in that area was "Less of a Priority" than other areas of need. In cases such as this, please indicate the areas of need that were of higher priority.

If you have any questions regarding filling out the questionnaire, you can call the research assistant with whom you are working or Stacy Slavens at 515/294-8794. In addition, your research assistant will be able to review this questionnaire with you at the beginning of the teacher interview to clarify any additional questions you may have.

Thank you,

Stacy Slavens, Ed.S.
Graduate Student
Iowa State University

ID #_____

DEMOGRAPHIC INFORMATION

Teacher Information:

Age:	
Ethnic Background: _____Asian _____Middle Eastern _____African-American _____Hispanic _____Caucasian _____Native American _____Multi-Racial _____Other:	Educational Background (check all that apply): _____4 Year College Degree (B.A., B.S.) _____Some Graduate School _____Graduate Degree (M.A., M.S., Ed.S.) _____Doctoral Degree (Ph.D., Ed.D.) _____Other (please specify):
Training Specialization(s) (check all that apply): _____Regular Education _____Special Education _____MD _____BD _____LD _____Early Childhood _____Early Childhood Special Education _____Other:	
Number of Years Teaching:	Number of Years Teaching Special Education Students:
Have you received TEACCH or Heartland Autism Training?	Number of Years Teaching Students with Autism:

DEFINITIONS OF SKILL AREAS

Eating: Goals related to the development of eating skills. Examples include oral motor skills related to chewing and swallowing food, trying different types of food, appropriate table manners. Non examples include communication attempts to obtain more food, domestic skills related to eating (e.g., setting the table, clean up), making shopping list or menu, shopping for food, preparing meals.

Toileting: Goals related to the development of toileting skills. Examples include physical act of toileting, wiping self, flushing the toilet, appropriate dressing and undressing related to toileting. Non examples include communication attempts to express the need to use the bathroom, domestic skills related to cleaning the bathroom, replacing toilet paper roll.

Personal Hygiene/Grooming: Goals related to the development of personal hygiene/grooming skills. Examples include bathing, brushing teeth, washing hands, shaving, brushing/combing hair. Non examples include purchasing self-care products (e.g., shampoo).

Dressing: Goals related to the development of dressing skills. Examples include physical act of putting on clothing, tying shoes, zipping coat, buttoning, choosing clothing appropriate for weather conditions. Non examples include purchasing clothing, dressing/undressing associated with toileting, asking for help in zipping or buttoning.

Domestic: Goals related to the development of domestic skills. Examples include household cleaning (e.g., dusting, vacuuming, cleaning the bathroom, washing dishes), doing laundry, folding clothing, making minor household repairs (e.g., changing light bulb), setting the table, making shopping list or menu, cleaning up after meal, taking out garbage, preparing meals.

Community Independence/Mobility: Goals related to independently navigating home, school, and community environments. Examples include transitioning between activities, asking for directions, following a map, taking the bus.

Leisure: Goals related to the development of leisure skills. Examples include choosing leisure/play activity, engaging in leisure/play activities, hobbies. Non examples include social play skills.

Preacademics: Goals related to the development of preacademic skills. Examples include learning colors, shapes, letters, numbers, copying, tracing, matching, puzzles.

Reading: Goals related to the development of basic, functional reading skills. Examples include reading fluency, reading comprehension, sight words, reading signs/symbols, reading list of ingredients.

Math: Goals related to the development of basic, functional math skills. Examples include basic facts, completing complex math problems.

Written Expression: Goals related to the development of basic, functional written language skills. Examples include writing, editing, spelling, punctuation, grammar, taking telephone messages.

Money/Purchasing: Goals related to the development of skills in identifying the value of coins and bills and the use of money in making purchases, as well as budgeting.

Time & Punctuality: Goals related to the development of time skills. Understanding time, using clocks, calendar skills.

Prevocational/Vocational: Goals related to prevocational and basic job skills. Examples include on-task behavior, assignment completion, sorting, knowledge of specific jobs, filling out a job application, specific job skills, interviewing for a job.

Social: Goals related to the development of appropriate social skills. Examples include initiating social interactions with peers and adults, responding to interactions from peers and adults, appropriate body posture, eye contact, anger management, conversation skills, appropriate play skills such as sharing and cooperating, participating in large/small group activities/games. Non examples include communication skills and leisure skills.

Communication: Goals related to the development of communication and language skills. Examples include expressing wants and needs, developing verbal vocabulary, learning communication function (e.g., protesting, requesting). Non examples include social skills.

Challenging Behavior: Goals related to decreasing stereotypic behaviors; overt behaviors that are directed at others or disruptive to others; internalizing behaviors; and/or other atypical or unusual behaviors. Examples include flapping, toe walking, whirling, spinning; aggression, screaming, tantruming, arguing, fighting, biting; anxiety, depression; visual scrutiny, licking, mouthing, rubbing surfaces, picking skin. Non examples include prevocational skills, social skills, communication skills.

ID #_____

	Eating	**Toileting**	**Personal Hygiene/ Grooming**	**Dressing**	**Domestic**	**Independence/ Mobility**
If, YES student has IEP goal, Why? (choose 1 primary reason)						
Child's skills do not meet developmental expectations						
Child's skills slightly below expectations, but important to address this skill at this time						
Parents wanted this skill addressed						
Classroom curriculum does not address this skill						
More of a priority than other areas of need						
All children with autism need intervention in this area						
Other (please specify on back of page):						
If, NO student does not have IEP goal, Why? (choose 1 primary reason)						
Child's skills currently meet developmental expectations						
Not important to address skill at this time, but will be important to address in the future						
This skill is addressed at home by family members(s)						
Classroom curriculum addresses this skill						
Intervention being implemented, but not written as a goal						
Too difficult to monitor						
Too difficult to intervene						
Less of a priority than other areas of need (please specify on back of page):						
Other (please specify on back of page):						

ID #_____

	Leisure	Preacademic	Reading	Math	Written Language	Money
If, YES student has IEP goal, Why? (choose 1 primary reason)						
Child's skills do not meet developmental expectations						
Child's skills slightly below expectations, but important to address this skill at this time						
Parents wanted this skill addressed						
Classroom curriculum does not address this skill						
More of a priority than other areas of need						
All children with autism need intervention in this area						
Other (please specify on back of page):						
If, NO student does not have IEP goal, Why? (choose 1 primary reason)						
Child's skills currently meet developmental expectations						
Not important to address skill at this time, but will be important to address in the future						
This skill is addressed at home by family members(s)						
Classroom curriculum addresses this skill						
Intervention being implemented, but not written as a goal						
Too difficult to monitor						
Too difficult to intervene						
Less of a priority than other areas of need (please specify on back of page):						
Other (please specify on back of page):						

ID #_____

	Time	Prevocational/ Vocational	Social	Communication	Challenging Behavior
If, YES student has IEP goal, Why? (choose 1 primary reason)					
Child's skills do not meet developmental expectations					
Child's skills slightly below expectations, but important to address this skill at this time					
Parents wanted this skill addressed					
Classroom curriculum does not address this skill					
More of a priority than other areas of need					
All children with autism need intervention in this area					
Other (please specify on back of page):					
If, NO student does not have IEP goal, Why? (choose 1 primary reason)					
Child's skills currently meet developmental expectations					
Not important to address skill at this time, but will be important to address in the future					
This skill is addressed at home by family members(s)					
Classroom curriculum addresses this skill					
Intervention being implemented, but not written as a goal					
Too difficult to monitor					
Too difficult to intervene					
Less of a priority than other areas of need (please specify on back of page):					
Other (please specify on back of page):					

APPENDIX K:
ADAPTIVE BEHAVIOR OBSERVATION SYSTEM (ABOS)

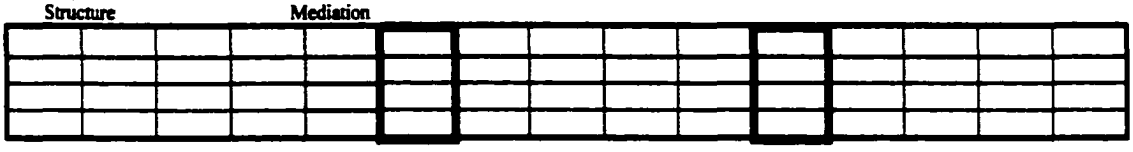
Date_____ ID_____

Observer_____ Time: 1 2 3

ADAPTIVE BEHAVIOR OBSERVATION SYSTEM (ABOS):
CLASSROOM OBSERVATION

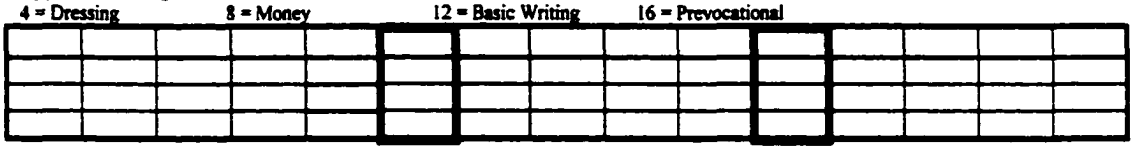
1. Instructional Organization:
2.

1 = One-on-One
2 = Physical/Visual Structure
3 = Communication System
4 = Peer Tutoring/ Mediation
5 = Other
6 = None



2. Primary Skill Activity:

1 = Eating
2 = Toileting
3 = Hygiene/Grooming
4 = Dressing
5 = Domestic
6 = Independence
7 = Leisure
8 = Money
9 = Preacademics
10 = Basic Reading
11 = Basic Math
12 = Basic Writing
13 = Time
14 = Social Skills
15 = Communicate
16 = Prevocational
17 = Vocational
18 = Other
19 = None

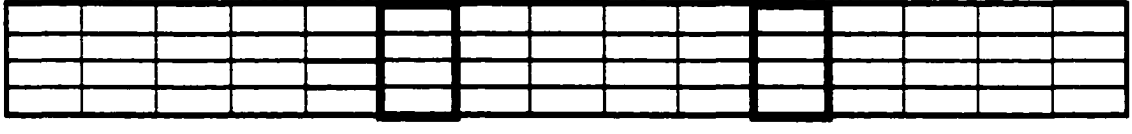


3. Student Behavior:

1 = Attention
2 = Engaged
3 = Not Engaged

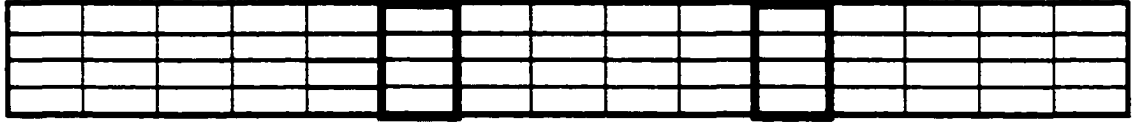
4. Primary Interactor:

1 = Classroom Teacher
2 = Educational Associate
3 = Ancillary
4 = Volunteer
5 = Student Teacher
6 = Substitute Teacher
7 = Peer
8 = No Staff
9 = Other



5. Adult/Peer Instruction-Related Behavior:

1 =Verbal Instruction only
2 = Modeling
3 = Multiple Modality Instruction
4 = Physical Assistance
5 = Instruct/Prompt Peer
6 = Consequate
7 = Other
8 = None



ADAPTIVE BEHAVIOR OBSERVATION SYSTEM (ABOS) DEFINITIONS

INSTRUCTIONAL ORGANIZATION

1 = **One-on-One:** Direct instruction or modeling of skill to student by one teacher, ancillary, volunteer, student teacher, substitute teacher, or educational associate.

2 = **Physical/Visual Structure:** Environmental structure to facilitate skill development. Examples include, individualized schedule (e.g., object, picture, line drawing, words), physical structure (e.g., shelves, furniture), work system, work station, visual clarity/organization (e.g., tape, carpet square, timers).

3 = **Communication System:** Functional communication system in place. Examples include Picture Exchange System, break card, communication board, other communication systems (e.g., objects, pictures, line drawings, written words).

4 = **Peer Tutoring/Mediation:** Direct instruction or modeling of skill to student by a peer.

5 = **Other:** Systematic intervention that does not reflect any of the other categories.

6 = **None:** No evident intervention strategies being used.

PRIMARY SKILL ACTIVITY

1 = **Eating:** Activities related to the development of eating skills. Examples include oral motor skills related to chewing and swallowing food, trying different types of food, appropriate table manners. Non examples include communication attempts to obtain more food, domestic skills related to eating (e.g., setting the table, clean up), making shopping list or menu, shopping for food, preparing meals.

2 = **Toileting:** Activities related to the development of toileting skills. Examples include physical act of toileting, wiping self, flushing the toilet, appropriate dressing and undressing related to toileting. Non examples include communication attempts to express the need to use the bathroom, domestic skills related to cleaning the bathroom, replacing toilet paper roll.

3 = **Personal Hygiene/Grooming:** Activities related to the development of personal hygiene skills. Examples include bathing, brushing teeth, washing hands, shaving, brushing/combing hair. Non examples include purchasing self-care products (e.g., shampoo, toothbrush).

4 = **Dressing:** Activities related to the development of dressing skills. Examples include physical act of putting on clothing, tying shoes, zipping coat, buttoning, choosing clothing appropriate for weather conditions.. Non examples include purchasing clothing, dressing/undressing associated with toileting, asking for help in zipping or buttoning.

5 = **Domestic:** Activities related to the development of domestic skills. Examples include household cleaning (e.g., dusting, vacuuming, cleaning the bathroom, washing dishes), doing laundry, folding clothing, making minor household repairs (e.g., changing light bulb), setting the table, making shopping list or menu, cleaning up after meal, taking out garbage, preparing meals.

6 = **Independence/Community Mobility:** Activities related to independently navigating home, school, and community environments. Examples include transitioning between activities, asking for directions, following a map, taking the bus.

7 = Leisure: Activities related to the development of leisure skills. Examples include choosing leisure/play activity, engaging in leisure/play activities, hobbies. Non examples include social play skills.

8 = Money/Purchasing: Activities related to the development of skills in identifying the value of coins and bills and the use of money in making purchases, as well as budgeting.

9 = Preacademics: Activities related to the development of preacademic skills. Examples include learning colors, shapes, letters, numbers, copying, tracing, matching, puzzles.

10 = Basic Reading: Activities related to the development of basic, functional reading skills. Examples include reading fluency, reading comprehension, sight words, reading signs/symbols, reading list of ingredients.

11 = Basic Math: Activities related to the development of basic, functional math skills. Examples include basic facts, completing complex math problems.

12 = Basic Writing: Activities related to the development of basic, functional written language skills. Examples include writing, editing, spelling, punctuation, grammar, taking telephone messages.

13 = Time: Activities related to the development of time skills. Understanding time, using clocks, calendar skills.

14 = Social: Activities related to the development of appropriate social skills. Examples include initiating social interactions with peers and adults, responding to interactions from peers and adults, appropriate body posture, eye contact, anger management, conversation skills, appropriate play skills such as sharing and cooperating, participating in large/small group activities/games. Non examples include communication skills and leisure skills.

15 = Communicate: Activities related to the development of communication and language skills. Examples include expressing wants and needs, developing verbal vocabulary, learning communication function (e.g., protesting, requesting). Non examples include social skills.

16 = Prevocational: Activities related to basic job skills. Examples include on-task behavior, assignment completion.

17 = Vocational: Activities related to the development of vocational skills. Examples include sorting, knowledge of specific jobs, filling out a job application, specific job skills, interviewing for a job.

18 = Other: Activities related to the development of skills not addressed in other categories.

19 = None: No skill being targeted.

STUDENT BEHAVIOR

1 = Attention: Student is looking at the teacher who is lecturing, giving directions, or discussing; observing another student; focusing on instructional or play materials. The student is not engaged in any interfering behaviors.

2 = Engaged: Student is actively involved in behaviors appropriate for the activity in which the child is involved. Examples include academic work behaviors (reciting the alphabet, copying or tracing letters or numbers, matching, sorting, counting objects, or rote counting); pretending behaviors (talking on a toy phone, pretending to cook dinner on a toy stove, making a car noise while making a car go); manipulating behaviors (putting together puzzles, building with blocks); gross motor behaviors (running, climbing, hopping, skipping, throwing, kicking, catching); singing/reciting behaviors (singing, fingerplays, moving to music); self-care

behaviors (eating, toileting, dressing, grooming); transition behaviors (moving to a different center, walking in line, selecting new materials, cleaning up).

3 = Not Engaged: Student is not actively involved in behaviors appropriate for the activity, not attending, and/or engaged in interfering behaviors. Examples include off-task behaviors (sitting and watching the class sing when the teacher has asked the entire group to sing, running in the classroom when the teacher has asked the students to walk to the next center, talking out loud when the class has been asked to sit and listen); self-stimulation behaviors (flapping, whirling, pacing, banging/hitting self, toe walking); sensory-motor behaviors (rubbing surfaces, licking/smelling toys, visual scrutiny, lining up objects, whirling/spinning objects, staring, covering eyes/ears); acting out behaviors (hitting, fighting, kicking, slapping, poking, pulling hair, taking a toy from another child, making hostile comments, crying, tantruming, shouting or yelling).

PRIMARY INTERACTOR

1 = Classroom Teacher: Teacher with primary responsibility for classroom.

2 = Educational Associate: A paid staff member who assists the classroom teacher. Includes classroom educational associate or student's one-on-one associate.

3 = Ancillary: Adult providing support services to the classroom, including such individuals as speech therapist, physical or occupational therapist, P.E. specialist, school psychologist, social worker, educational consultant, special educator, counselor, music teacher, foreign language teacher, or librarian.

4 = Volunteer: An unpaid teacher's assistant. Examples of volunteers include parents, foster grandparents, and high school or college students, who are not participating in a practicum experience.

5 = Student Teacher: An adult who assists the teacher or ancillary personnel as part of a university practicum experience.

6 = Substitute Teacher: An adult who is not a regular member of the teaching staff who takes the teacher's role in the classroom when the teacher is absent

7 = Peer(s): Student's peer or another student.

8 = No Staff: No staff is coded when no adult is located in the same room as the student or within approximately 25 feet of the student.

9 = Other: This code is used for individuals who do not fit within the other categories or when the status of the adult who is interacting with the student is unknown.

ADULT/PEER INSTRUCTION-RELATED BEHAVIOR

1 = Verbal Instruction: Teacher, associate, other adult, or peer providing instruction to target student verbally. May include asking questions, giving directions, commenting, or explaining related to the curriculum.

2 = Modeling: Teacher, associate, other adult, or peer demonstrating to student how to perform task, activity, or behavior.

3 = Multiple Modality Instruction: Teacher, associate, other adult, or peer using a variety of methods to instruct or prompt student (e.g., verbal, visual, modeling, gestures, physical assistance) in relation to the curriculum.

4 = Physical Assistance: Teacher, associate, other adult, or peer physically leading target student in performance or completion of task, activity, or behavior. To be coded as physical assistance, the primary interactor should not be using any other means of instructing or prompting the student (e.g., verbal, visual, modeling, gestures).

5 = Instruct/Prompt Peer: Teacher, associate, or other adult instructing or providing direction to peer on how to intervene with target student.

6 = Consequate: Teacher, associate, other adult, or peer provides consequence to target student for completion, performance, or non performance of a task, activity, or behavior. Examples include, tangible reward, tangible punishment, social praise, verbal reprimand.

7 = Other: Teacher, associate, other adult, or peer using another strategy in instruction of student that is not reflected in other categories.

8 = None: Teacher, associate, or peer is not interacting with student

APPENDIX L:
ADAPTIVE BEHAVIOR PROGRAM INTERVIEW (ABPI)

TEACHER INTERVIEW SCRIPT:
ADAPTIVE BEHAVIOR INTERVENTIONS

The purpose of this interview is to find out strategies that you are using to address _____'s needs in a variety of areas. For each area you will be asked to describe the specific need that your student has in that area (if any) and then to describe specific individualized strategies that you use to meet that need. If _____ does not have a specific need in one of these areas, I will be asking you about general strategies that you use with the whole class or another student who has that need. This interview is being tape-recorded. Remember that all the information you provide today will be kept confidential and will be reported in a way to assure your anonymity, such as a summary of group information. We will be starting now. This interview should take approximately 45 minutes to complete.

The first area that we will be discussing is **eating**...
(The next area is...**toileting, personal hygiene/grooming, dressing, leisure, money, time, domestic, community mobility/independence, prevocational/work, preacademics, reading, math, writing, social skills, language expression, language comprehension, challenging behavior**)

Question 1: Does _____ have any needs in this area? If yes, please describe the specific needs in detail.

If YES (use for each area of need, if multiple needs within an area):

Question 2: What specific strategies do you use to address this need?

a. Describe the specific strategy
b. Who implements, where, and when
c. How much time is spent implementing this strategy per week
d. Is this strategy documented? How? (Written intervention plan)
e. Please describe the progress monitoring activities you use with this strategy. (e.g., what kind of data is collected, how often)

Question 3: On a scale from 1-6, how difficult or easy is it to address _____'s needs in this area? (e.g., how easy/difficult is it to **develop and implement** intervention strategies?)

1 = very easy
2 = easy
3 = somewhat easy
4 = somewhat difficult
5 = difficult
6 = very difficult

For 4-6 (somewhat difficult to very difficult)

Question 4: Why is it difficult to address _____'s needs in this area?

PROMPT: Some reasons teachers give for having difficulty include things such as:

Lack of time/resources	Not a priority area
Inappropriate to address at school	Lack of training

If NO,

Question 2: Is this skill taught on a class wide level or with another student with this need? If yes, please describe the strategies that you use to teach this skill.

Question 3: On a scale from 1-6, how difficult or easy is it to address students' needs in this area? (e.g., how easy/difficult is it to develop and implement intervention strategies?)

1 = very easy
2 = easy
3 = somewhat easy
4 = somewhat difficult
5 = difficult
6 = very difficult

For 4-6 (somewhat difficult to very difficult)

Question 4: Why is it difficult to address student needs in this area?

PROMPT: Some reasons teachers give for having difficulty include things such as:

Lack of time/resources	Not a priority area
Inappropriate to address at school	Lack of training

END OF INTERVIEW:

1. How accurate is _____'s IEP in reflecting his/her needs and educational program? (What goes on in the classroom on a day to day basis)

2. How much does _____'s IEP guide/influence your daily instructional planning for this student?

3. In your opinion, what is the purpose of the IEP process? Special education?

4. What additional resources or changes would you need to occur in order to meet all of your student's needs?

Self-Help/Independent Functioning

1. Eating
2. Toileting
3. Personal Hygiene/Grooming
4. Dressing
5. Leisure (Selecting and Engaging in Appropriate Leisure/Play Activities)
6. Domestic Skills
7. Independence/Community Orientation/Mobility
8. Task Completion
9. Following Directions
10. Prevocational/Vocational Skills

Academics

1. Preacademics
2. Reading (Fluency, Comprehension)
3. Math (Facts, Computation, Problem Solving)
4. Written Language (Fine Motor Skills, Grammar, Editing, Punctuation)
5. Time
6. Money

Communication

1. Using a Communication System
2. Receptive Language
3. Expressive Language/Function (Expressing Wants and Needs, Communicative Functions: protesting, requesting, etc., Verbal Vocabulary)

Social

1. Interactions with Adults or Peers (Initiating or Maintaining Interactions, Conversation Skills, Social Play Skills: Sharing, Cooperating)
2. Challenging Behaviors

DIFFICULTY RATINGS STIMULUS

1	2	3	4	5	6
Very Easy	**Easy**	**Somewhat Easy**	**Somewhat Difficult**	**Difficult**	**Very Difficult**

APPENDIX M:

ADAPTIVE BEHAVIOR ATTITUDES SURVEY (ABAS): PARENT VERSION

Date

Dear Parent,

Thank you for participating in Project PASSAGES! We believe that this research project has significant potential for improving educational experiences for students with autism, their parents, and their teachers, both in Iowa, as well as across the nation.

Enclosed you will find the rating scale discussed in the first letter. The purpose of this rating scale is to gather information about what parents of children with autism think about various skill areas, how these skill areas should be prioritized, and the settings where these skills should be taught. The rating scale is divided into several sections. Please follow the directions at the beginning of each section in filling out the rating scale. A form has also been included to gather some demographic information about your family. To protect the confidentiality of the information you provide both forms contain an identification number. You do not need to write your names or your child's name on either form.

The third form included in this packet is titled "Independent Personal Service". This is a standard Iowa State University form that needs to be filled out so that we can send you $20 in appreciation of your time in participating in this project. Please fill out the numbered items (1-7), date, and sign the form.

Please fill out this rating scale, the demographic information form, and the "Independent Personal Service" form at your convenience and return them in the enclosed self-addressed stamped envelope by XX, 1999/2000. Approximately six months after all data have been gathered, you will be sent a description of the results of Project PASSAGES.

If you have any questions, please feel free to contact me at 515/294-8794. Thank you again for participating in this project!

Sincerely,

Stacy S. Slavens, Ed.S
Graduate Student
Iowa State University

ID#_____

DEMOGRAPHIC INFORMATION

Parent Information:

Mother	Father
Age:	Age:
Ethnic Background: _____Asian _____Middle Eastern _____African-American _____Hispanic _____Caucasian _____Native American _____Multi-Racial _____Other:	Ethnic Background: _____Asian _____Middle Eastern _____African-American _____Hispanic _____Caucasian _____Native American _____Multi-Racial _____Other:
Educational Background (check highest level completed): _____Some High School _____High School Graduate _____GED _____Vocational Training _____Some College _____Two Year College Degree (A.A.) _____Four Year College Degree (B.A., B.S.) _____Some Graduate School _____Graduate Degree (M.A., M.S., Ed.S.) _____Professional Degree (Ph.D., M.D., J.D.)	Educational Background (check highest level completed): _____Some High School _____High School Graduate _____GED _____Vocational Training _____Some College _____Two Year College Degree (A.A.) _____Four Year College Degree (B.A., B.S.) _____Some Graduate School _____Graduate Degree (M.A., M.S., Ed.S.) _____Professional Degree (Ph.D., M.D., J.D.)
Marital Status: _____Single _____Never Married, Living Together _____Married _____Divorced _____Separated _____Widowed	Marital Status: _____Single _____Never Married, Living Together _____Married _____Divorced _____Separated _____Widowed
Occupation:	Occupation:

Family Information:

Number of Children:_____

Yearly Income:

_____Under 5,000
_____5,000-9,999
_____10,000-14,999
_____15,000-19,999
_____20,000-24,999
_____25,000-29,999
_____30,000-34,999
_____35,000-39,999
_____40,000-44,999
_____45,000-49,999
_____50,000-54,999
_____55,000-59,000
_____60,000-64,999
_____65,000-69,999
_____70,000-74,999
_____75,000-79,999
_____80,000-84,999
_____85,000-89,999
_____90,000-94,999
_____95,000+

SECTION 1 **ID#**_____

PART A: The statements in this section are concerned with **functional academic skills** (e.g., preacademics; basic literacy skills in reading, writing, math; money skills, time skills). Please rate the degree to which you agree or disagree with each of the following statements.

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1.	To function independently in society as adults, it is important that individuals with autism develop functional academic skills.	1	2	3	4	5	6
2.	For students with autism, it is less important to focus on functional academic skills in school than on other skills (e.g., daily living, social, communication, prevocational).	1	2	3	4	5	6
3.	Most students with autism do not automatically learn functional academic skills without direct instruction or intervention.	1	2	3	4	5	6
4.	The primary responsibility to teach functional academic skills to children with autism lies with families.	1	2	3	4	5	6
5.	The primary responsibility to teach functional academic skills to children with autism lies with teachers.	1	2	3	4	5	6

PART B: The statements in this section are concerned with **social & communication skills** (e.g., interacting with other children and adults, communicating wants and needs). Please rate the degree to which you agree or disagree with each of the following statements.

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1.	To function independently in society as adults, it is important that individuals with autism develop social and communication skills.	1	2	3	4	5	6
2.	For students with autism, it is less important to focus on social and communication skills in school than on other skills (e.g., daily living, academics, prevocational).	1	2	3	4	5	6
3.	Most students with autism do not automatically learn social/communication skills without direct instruction or intervention.	1	2	3	4	5	6
4.	The primary responsibility to teach social and communication skills to children with autism lies with families.	1	2	3	4	5	6
5.	The primary responsibility to teach social and communication skills to children with autism lies with teachers.	1	2	3	4	5	6

ID#_____

PART C: The statements in this section are concerned with **prevocational** (e.g., on task behavior, following directions, assignment completion, work skills, sorting, knowledge of various jobs and careers). Please rate the degree to which you agree or disagree with each of the following statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1. To function independently in society as adults, it is important that individuals with autism develop prevocational skills.	1	2	3	4	5	6
2. For students with autism, it is less important to focus on prevocational skills in school than on other skills (e.g., academics, social, communication, daily living).	1	2	3	4	5	6
3. Most students with autism do not automatically learn prevocational skills without direct instruction or intervention.	1	2	3	4	5	6
4. The primary responsibility to teach prevocational skills to children with autism lies with families.	1	2	3	4	5	6
5. The primary responsibility to teach prevocational skills to children with autism lies with teachers.	1	2	3	4	5	6

PART D: The statements in this section are concerned with **daily living skills** (e.g., eating, toileting, personal hygiene/grooming, dressing, domestic; independence in getting around the classroom, school, and community; leisure skills). Please rate the degree to which you agree or disagree with each of the following statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1. To function independently in society as adults, it is important that individuals with autism develop daily living skills.	1	2	3	4	5	6
2. For students with autism, it is less important to focus on daily living skills in school than on other skills (e.g., academics, social, communication, prevocational).	1	2	3	4	5	6
3. Most students with autism do not automatically learn daily living skills without direct intervention.	1	2	3	4	5	6
4. The primary responsibility to teach daily living skills to children with autism lies with families.	1	2	3	4	5	6
5. The primary responsibility to teach daily living skills to children with autism lies with teachers.	1	2	3	4	5	6

ID#_____

SECTION 2

The purpose of this section is to gather information regarding the setting(s) that you believe are the most important for teaching various skills, as well as the relative importance of teaching skills in each setting. For each of the following skill areas, please rank order the settings in terms of how important you believe it is to teach the skill in that setting. If you believe that one or more of the settings is inappropriate for teaching that skill, place a "0" in that box.

1 = Most Important Setting for Teaching Skill
2 = Second Most Important Setting for Teaching Skill
3 = Third Most Important Setting for Teaching Skill
0 = Setting Is Inappropriate for Teaching Skill

SKILL AREAS:	SETTINGS		
	Home	School	Community
Eating Skills			
Toileting Skills			
Personal Hygiene/Grooming Skills			
Dressing Skills			
Leisure Skills			
Money and Purchasing Skills			
Time and Punctuality Skills			
Domestic Skills			
Community Independence/Mobility			
Prevocational/Work Skills			
Preacademics			
Reading Skills			
Math Skills			
Writing Skills			
Social Skills			
Communication Skills			

ID#_____

SECTION 3

PART A: Please rank order the following 4 areas in terms of how much emphasis you believe should be placed on that area in your child's educational program (e.g., how much of the school day should be devoted to teaching your child skills in that area). Use each of the following rankings only once.

1 = Most Emphasis
2 = Second Most Emphasis
3 = Third Most Emphasis
4 = Fourth Most Emphasis

_____**Daily Living Skills** (e.g., eating, toileting, personal hygiene, dressing, domestic; independence in getting around the classroom, school, and community; leisure skills)

_____**Functional Academics** (e.g., preacademics; basic literacy skills in reading, writing, math; money skills; time skills)

_____**Prevocational** (e.g., on task behavior, following directions, assignment completion, work skills, knowledge of various jobs and careers, filling out job applications, sorting)

_____**Social Skills & Communication** (e.g., interacting with other children and adults, communicating wants and needs)

PART B: Please rate each of the following areas in terms of how important you believe it is that your child is taught skills in that area at school.

	Very Unimportant	Unimportant	Somewhat Unimportant	Somewhat Important	Important	Very Important
Daily Living	1	2	3	4	5	6
Functional Academics	1	2	3	4	5	6
Prevocational	1	2	3	4	5	6
Social Skills & Communication	1	2	3	4	5	6

PART C: If you have any additional comments regarding your child's educational program, please write them below. If you need additional space, please use the back of this page.

_____

_____

_____

_____

_____

APPENDIX N:

ADAPTIVE BEHAVIOR ATTITUDES SURVEY (ABAS): TEACHER VERSION

Date

Dear Teacher,

Thank you for participating in Project PASSAGES! We believe that this research project has significant potential for improving educational experiences for students with autism, their parents, and their teachers, both in Iowa, as well as across the nation.

Enclosed you will find the rating scale discussed in the first letter. The purpose of this rating scale is to gather information about what teachers of children with autism think about various skill areas, how these skill areas should be prioritized, and the settings where these skills should be taught. The rating scale is divided into several sections. Please follow the directions at the beginning of each section in filling out the rating scale. To protect the confidentiality of the information you provide the rating scale contains an identification number. You do not need to write your name or your student's name on this form.

The second form included in this packet is titled "Independent Personal Service". This is a standard Iowa State University form that needs to be filled out so that we can send you $20 in appreciation of your time in participating in this project. Please fill out the numbered items (1-7), date, and sign the form.

Please fill out this rating scale and the "Independent Personal Service" form at your convenience and return them in the enclosed self-addressed stamped envelope by XX, 1999/2000. Approximately six months after all data have been gathered, you will be sent a description of the results of Project PASSAGES.

If you have any questions, please feel free to contact me at 515/294-8794. Thank you again for participating in this project!

Sincerely,

Stacy S. Slavens, Ed.S
Graduate Student
Iowa State University

SECTION 1 **ID#**_____

PART A: The statements in this section are concerned with **functional academic skills** (e.g., preacademics; basic literacy skills in reading, writing, math; money skills, time skills). Please rate the degree to which you agree or disagree with each of the following statements.

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1.	To function independently in society as adults, it is important that individuals with autism develop functional academic skills.	1	2	3	4	5	6
2.	For students with autism, it is less important to focus on functional academic skills in school than on other skills (e.g., daily living, social, communication, prevocational).	1	2	3	4	5	6
3.	Most students with autism do not automatically learn functional academic skills without direct instruction or intervention.	1	2	3	4	5	6
4.	The primary responsibility to teach functional academic skills to children with autism lies with families.	1	2	3	4	5	6
5.	The primary responsibility to teach functional academic skills to children with autism lies with teachers.	1	2	3	4	5	6

PART B: The statements in this section are concerned with **social & communication skills** (e.g., interacting with other children and adults, communicating wants and needs). Please rate the degree to which you agree or disagree with each of the following statements.

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1.	To function independently in society as adults, it is important that individuals with autism develop social and communication skills.	1	2	3	4	5	6
2.	For students with autism, it is less important to focus on social and communication skills in school than on other skills (e.g., daily living, academics, prevocational).	1	2	3	4	5	6
3.	Most students with autism do not automatically learn social/communication skills without direct instruction or intervention.	1	2	3	4	5	6
4.	The primary responsibility to teach social and communication skills to children with autism lies with families.	1	2	3	4	5	6
5.	The primary responsibility to teach social and communication skills to children with autism lies with teachers.	1	2	3	4	5	6

ID#_____

PART C: The statements in this section are concerned with **prevocational** (e.g., on task behavior, following directions, assignment completion, work skills, sorting, knowledge of various jobs and careers). Please rate the degree to which you agree or disagree with each of the following statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1. To function independently in society as adults, it is important that individuals with autism develop prevocational skills.	1	2	3	4	5	6
2. For students with autism, it is less important to focus on prevocational skills in school than on other skills (e.g., academics, social, communication, daily living).	1	2	3	4	5	6
3. Most students with autism do not automatically learn prevocational skills without direct instruction or intervention.	1	2	3	4	5	6
4. The primary responsibility to teach prevocational skills to children with autism lies with families.	1	2	3	4	5	6
5. The primary responsibility to teach prevocational skills to children with autism lies with teachers.	1	2	3	4	5	6

PART D: The statements in this section are concerned with **daily living skills** (e.g., eating, toileting, personal hygiene/grooming, dressing, domestic; independence in getting around the classroom, school, and community; leisure skills). Please rate the degree to which you agree or disagree with each of the following statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1. To function independently in society as adults, it is important that individuals with autism develop daily living skills.	1	2	3	4	5	6
2. For students with autism, it is less important to focus on daily living skills in school than on other skills (e.g., academics, social, communication, prevocational).	1	2	3	4	5	6
3. Most students with autism do not automatically learn daily living skills without direct intervention.	1	2	3	4	5	6
4. The primary responsibility to teach daily living skills to children with autism lies with families.	1	2	3	4	5	6
5. The primary responsibility to teach daily living skills to children with autism lies with teachers.	1	2	3	4	5	6

SECTION 2 **ID#**_____

The purpose of this section is to gather information regarding the setting(s) that you believe are the most important for teaching various skills, as well as the relative importance of teaching skills in each setting. For each of the following skill areas, please rank order the settings in terms of how important you believe it is to teach the skill in that setting. If you believe that one or more of the settings is inappropriate for teaching that skill, place a "0" in that box.

1 = Most Important Setting for Teaching Skill
2 = Second Most Important Setting for Teaching Skill
3 = Third Most Important Setting for Teaching Skill
0 = Setting Is Inappropriate for Teaching Skill

	SETTINGS		
SKILL AREAS:	Home	School	Community
Eating Skills			
Toileting Skills			
Personal Hygiene/Grooming Skills			
Dressing Skills			
Leisure Skills			
Money and Purchasing Skills			
Time and Punctuality Skills			
Domestic Skills			
Community Independence/Mobility			
Prevocational/Work Skills			
Preacademics			
Reading Skills			
Math Skills			
Writing Skills			
Social Skills			
Communication Skills			

SECTION 3: **ID#**_____

Part A: Please rank order the following 4 areas in terms of how much emphasis you believe should be placed on that area in your student's educational program (e.g., how much of the school day should be devoted to teaching your student skills in that area). Use each of the following rankings only once.

1 = Most Emphasis
2 = Second Most Emphasis
3 = Third Most Emphasis
4 = Fourth Most Emphasis

_____**Daily Living Skills** (e.g., eating, toileting, personal hygiene, dressing, domestic; independence in getting around the classroom, school, and community; leisure skills)

_____**Functional Academics** (e.g., preacademics; basic literacy skills in reading, writing, math; money skills; time skills)

_____**Prevocational** (e.g., on task behavior, following directions, assignment completion, work skills, knowledge of various jobs and careers, filling out job applications, sorting)

_____**Social Skills & Communication** (e.g., interacting with other children and adults, communicating wants and needs)

Part B: Please rate each of the following areas in terms of how important you believe it is that your student is taught skills in that area at school.

	Very Unimportant	Unimportant	Somewhat Unimportant	Somewhat Important	Important	Very Important
Daily Living	1	2	3	4	5	6
Functional Academics	1	2	3	4	5	6
Prevocational	1	2	3	4	5	6
Social Skills & Communication	1	2	3	4	5	6

Part C: If you have any additional comments regarding your student's educational program, please write them below.

_____

_____

_____

_____

_____

_____

APPENDIX O:
CONGRUENCE ANALYSIS RESULTS TABLES:
SPECIFIC ITEM RESULTS FOR ABPS, ABOS, ABPI, ABAS

Table 66. ABPS congruence analysis

	ABPS	CTAB	SIB-R	Vineland	Heartland ABCD	McGrew	Reschly
Eating	X	X	X	X	X	X	X
Toileting	X	X	X	X	X	X	X
Hygiene, Grooming	X	X	X	X	X	X	X
Dressing	X	X	X	X	X	X	X
Leisure	X	X		X	X	X	X
Money	X	X	X	X	X	X	X
Time and Punctuality	X	X	X	X	X	X	X
Domestic	X	X	X	X	X	X	X
Community Mobility	X	X	X	X	X	X	X
Work/Voc/Prevocational	X	X	X	X	X	X	X
Preacademic	X	X			X	X	X
Reading	X	X			X	X	X
Math	X	X			X	X	X
Written Language	X	X		X	X	X	X
Social Skills	X	X	X	X	X	X	X
Communication	X	X	X	X	X	X	X
Challenging Behavior	X		X		X		
Social Studies							
Science							
Motor		X	X	X		X	
Health		X					
Telephone		X					

Table 67. ABOS congruence analysis: Instruments and definitions

	ABOS	CTAB	SIB-R	Vineland	McGrew	Reschly
Eating	X	X	X	X	X	X
Toileting	X	X	X	X	X	X
Hygiene, Grooming	X	X	X	X	X	X
Dressing	X	X	X	X	X	X
Leisure	X	X		X	X	X
Money	X	X	X	X	X	X
Time and Punctuality	X	X	X	X	X	X
Domestic	X	X	X	X	X	X
Community Mobility	X	X	X	X	X	X
Work/Voc/Prevocational	X	X	X	X	X	X
Preacademic	X	X			X	X
Reading	X	X			X	X
Math	X	X			X	X
Written Language	X	X		X	X	X
Social Skills	X	X	X	X	X	X
Communication	X	X	X	X	X	X
Challenging Behavior			X			
Social Studies						
Science						
Motor		X	X	X	X	
Health		X				
Telephone		X				

Table 68. ABOS congruence analysis: Environmental assessments and intervention descriptions

	ABOS	CISSAR	CSR-SPD	ESCAPE	Heartland ABCD
Eating	X		X	X	X
Toileting	X		X	X	X
Hygiene, Grooming	X		X	X	X
Dressing	X		X	X	X
Leisure	X				X
Money	X		X		X
Time and Punctuality	X				X
Domestic	X		X		X
Community	X	X	X	X	X
Mobility/Independence					
Work/Voc/Prevocational	X		X		X
Preacademic	X			X	X
Reading	X	X	X	X	X
Math	X	X	X	X	X
Written Language	X	X	X	X	X
Social Skills	X				X
Communication	X		X		X
Challenging Behavior		X	X	X	X
Social Study			X		
Science			X		
Motor			X	X	
Health					
Telephone					
One-on-one	X		X		X
Physical/Visual Structure	X				X
Comm System	X				X
Peer Mediation	X				X
Teacher	X		X	X	
Aide/Adult	X		X		
Peer(s)	X		X		
Other	X				
Ancillary	X			X	
Volunteer	X			X	
Student Teacher	X			X	
Substitute	X			X	
Verbal Instruction	X	X	X	X	
Modeling	X				
Multiple Modality Prompt	X				
Physical Assistance	X			X	
Prompt/Peer	X				
Consequate	X				
Verbal Prompt				X	
Discuss				X	

Table 69. ABPI congruence analysis

	ABPI	CTAB	SIB-R	Vineland	ABCD	McGrew	Reschly
Eating	X	X	X	X	X	X	X
Toileting	X	X	X	X	X	X	X
Hygiene, Grooming	X	X	X	X	X	X	X
Dressing	X	X	X	X	X	X	X
Leisure	X	X		X	X	X	X
Money	X	X	X	X	X	X	X
Time and Punctuality	X	X	X	X	X	X	X
Domestic	X	X	X	X	X	X	X
Community Mobility	X	X	X	X	X	X	X
Work/Voc/Prevocational	X	X	X	X	X	X	X
Preacademic	X	X			X	X	X
Reading	X	X			X	X	X
Math	X	X			X	X	X
Written Language	X	X		X	X	X	X
Social Skills	X	X	X	X	X	X	X
Communication	X	X	X	X	X	X	X
Challenging Behavior	X		X		X		
Social Studies							
Science							
Motor	X	X	X	X		X	
Health		X					
Telephone		X					

Table 70. ABAS congruence analysis

	ABAS	CTAB	SIB-R	Vineland	Heartland ABCD	McGrew	Reschly
Eating	X	X	X	X	X	X	X
Toileting	X	X	X	X	X	X	X
Hygiene, Grooming	X	X	X	X	X	X	X
Dressing	X	X	X	X	X	X	X
Leisure	X	X		X	X	X	X
Money	X	X	X	X	X	X	X
Time and Punctuality	X	X	X	X	X	X	X
Domestic	X	X	X	X	X	X	X
Community Mobility	X	X	X	X	X	X	X
Work/Voc/Prevocational	X	X	X	X	X	X	X
Preacademic	X	X			X	X	X
Reading	X	X			X	X	X
Math	X	X			X	X	X
Written Language	X	X		X	X	X	X
Social Skills	X	X	X	X	X	X	X
Communication	X	X	X	X	X	X	X
Challenging Behavior			X		X		
Social Studies							
Science							
Motor		X	X	X		X	
Health		X					
Telephone		X					

APPENDIX P:
RESEARCH ASSISTANT TRAINING MATERIALS

PROJECT PASSAGES:
TRAINING TOPICS AND TIMELINES

Session 1

The Basics: time sheets, mileage sheets
Research Assistant Responsibilities
Confidentiality
Brief Overview of Project/Purpose

Session 2

Overview of Project
- Purpose
- Research Questions
- Methods
- Timelines

Overview of Instruments
- Educational Record Review Protocol (ERRP)
- Adaptive Behavior Attitude Scale (ABAS)
- Adaptive Behavior Program Status (ABPS)
- Comprehensive Test of Adaptive Behavior (CTAB)
- Scales of Independent Behavior-Revised (SIB-R)
- Adaptive Behavior Observation System (ABOS)
- Adaptive Behavior Program Interview (ABPI)

Session 3

Characteristics of Autism
Differential Diagnosis of Pervasive Developmental Disorders
Assigned Reading: DSM-IV (1994) pp. 66-71; Klinger & Dawson (1996) pp. 311-339; Wolf-Schein (1996) pp. 33-53.

Session 4

Educational Implications of Autism
Adaptive Behavior
Assigned Readings: McGrew (1989); Reschly (1990) pp. 29-42; Jacobson & Ackerman (1990) pp. 205-219.

Session 5

Structured Teaching
Assigned Readings: Dawson & Osterling (1997) pp. 307-326; Schopler, Mesibov, & Hearsey (1995) pp. 243-268.

Session 6

Heartland's ABCD Model for Teaching Students with Autism
Assigned Readings: Volmer (1995) pp. 1031-1038.

Session 7

Educational Record Review Protocol (ERRP)
Practice

Session 8

ERRP Practice (continued)
Coding Definitions
Practice Coding PLEPs, IEP Goals, IEP Objectives

Session 9

Practice Coding PLEPs, IEP Goals, IEP Objectives (continued)

Session 10

Adaptive Behavior Program Status (ABPS)
Adaptive Behavior Attitude Survey (ABAS)

Session 11

Adaptive Behavior Observation System (ABOS)
ABOS Practice Observations

Session 12

ABOS Practice Observations
Comprehensive Test of Adaptive Behavior (CTAB)
Scales for Independent Behavior-Revised (SIB-R)
Assigned Readings: CTAB and SIB-R technical manuals (administration, scoring).

Session 13

ABOS Practice Observations

Session 14

ABOS Practice Observations
Adaptive Behavior Program Interview (ABPI)

Session 15

ABOS Practice Observations

Session 16

ABOS Practice Observations
Adaptive Behavior Program Interview (ABPI) (continued)

Session 17

ABOS Practice Observations

Session 18

ABOS Practice Observations
Identifying and Coding Student Needs from CTAB and SIB-R

Session 19

ABOS Practice Observations
Identifying and Coding Student Needs from CTAB and SIB-R (continued)

Session 20

ABOS Practice Observations

Session 21

Coding ABOS Engagement and Opportunity Data
Engagement Coding Practice
Opportunity Coding Practice

Session 22

Qualitative Analysis
Practice Identifying Individual Teacher Quotes
Assigned Readings: Johnson & LaMontagne (1993) pp. 73-79.

POTENTIAL RESEARCH RESPONSIBILITIES

- Instrument Piloting
  - Teacher Interview
  - Parent/Teacher Surveys
  - Classroom Observations
- Data Collection
  - Record Review
  - Parent Interview
  - Teacher Interview
  - Classroom Observations
- Data Coding
  - IEP Domains
  - Student Needs
  - Classroom Interventions
  - Need Congruence
  - ABOS Engagement and Opportunity
- Data Entry
- Transcribing Teacher Interviews
- Qualitative Analysis
- Library
  - Literature Review
  - Photocopying
- Clerical
  - Mailings
  - Filing
  - Organizational Stuff

Project PASSAGES
AGREEMENT TO MAINTAIN PROJECT CONFIDENTIALITY

As an employee of Project PASSAGES at Iowa State University, I understand that I am required to maintain absolute confidentiality regarding all information collected about families and children during the course of data collection and analysis. I understand that all confidential materials are to be kept in the project office except when I am in the field or completing documentation in my home. I understand that sensitive materials must be kept private under these circumstances. I also understand that any violation of confidentiality is grounds for immediate dismissal. I understand that the basis for this agreement is respect for families and children and compliance with university and federal regulations regarding ethical research practices. I agree to these conditions as part of my employment.

Name_____

Signature_____

Date_____

READING LIST

Adams, G. L. (1986). Comprehensive Test of Adaptive Behavior (CTAB). Columbus, OH: Merrill.

American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (DSM-IV). Washington, D. C.: American Psychiatric Association.

Bruininks, R. H., Woodcock, R. W., Weatherman, R. F., & Hill, B. K. (1996). Scales of Independent Behavior-Revise (SIB-R). Allen, TX: DLM Teaching Resources.

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Jacobson, J. W., & Ackerman, L. J. (1990). Differences in adaptive functioning among people with autism or mental retardation. Journal of Autism and Developmental Disorders, 20 (2), 205-219.

Johnson, L. J., & LaMontagne, M. J. (1993). Using content analysis to examine the verbal or written communication of stakeholders within early intervention. Journal of Early Intervention, 17 (1), 73-79.

Klinger, L. G. & Dawson, G. (1996). Autistic disorder. In E. J. Mash & R. A. Barkley (Eds.), Child Psychopathology (pp. 311 –339). New York: Guilford Press.

Reschly, D. J. (1990). Best practices in adaptive behavior. In A. Thomas & J. Grimes (Eds.), Best practices in school psychology (2nd ed., pp. 29-42). Washington, D. C.: The National Association of School Psychologists.

Schopler, E., Mesibov, G. B., & Hearsey, K. (1995). Structured teaching in the TEACCH program. In E. Schopler & G. B. Mesibov (Eds.), Learning and cognition in autism (pp. 243-268). New York: Plenum Press.

Volmer, L. (1995). Best practices in working with students with autism. In A. Thomas & J. Grimes (Eds.), Best practices in school psychology (3rd ed., pp. 1031-1038). Washington, D. C.: The National Association of School Psychologists.

Wolf-Schein, E. G. (1996). The Autistic Spectrum Disorder: A current review. Developmental Disabilities Bulletin, 24 (1), 33-55.

APPENDIX Q:
COMPREHENSIVE TEST OF ADAPTIVE BEHAVIOR (CTAB):
NEED IDENTIFICATION DECISION MAKING GUIDE

CTAB DECISION MAKING GUIDE:
NEED IDENTIFICATION PROCESS

Question #1: Was the student's qualitative ranking on the specific subscale (e.g., eating skills, toileting skills, math skills) average, low average, or low based on CTAB norms for "Mentally Retarded Students in School Settings"?

If yes, go to Question #2.
If no, code as not an area of need.

Question #2: Based on a review of specific skills within the subscale, is the student missing any skills that are typical for his/her age?

If yes, go to Question #3.
If no, code as not an area of need.

Question #3: Could the skill deficit interfere with the student's current social inclusion OR, if continued into adulthood, could the skill deficit decrease the individual's independence and, thus, increase his/her need for third party support?

If yes, code as an area of need.
If no, code as not an area of need.

APPENDIX R:
SCALES OF INDEPENDENT BEHAVIOR-REVISED (SIB-R):
NEED IDENTIFICATION DECISION MAKING GUIDE

SIB-R DECISION MAKING GUIDE:
NEED IDENTIFICATION PROCESS

Question #1: Was the student's qualitative ranking on the specific SIB-R Maladaptive Behavior Index (i.e.., internalized maladaptive index, asocial maladaptive index, externalized maladaptive index, general maladaptive index) marginally serious to very serious?

If yes, go to question #2.
If no, code as not an area of need.

Question #2: Based on review of specific problem behavior subscale reports, is the behavior significantly discrepant from what would be expected for the student's age?

If yes, go to question #3.
If no, code as not an area of need.

Question #3: Could the behavior significantly interfere with the student's learning or the learning of others OR could the behavior result in significant harm to the student or others?

If yes, code as an area of need.
If no, code as not an area of need.

APPENDIX S:

COMPREHENSIVE TEST OF ADAPTIVE BEHAVIOR (CTAB) SUBDOMAINS REPRESENTING GENERAL AREAS OF ADAPTIVE BEHAVIOR

CTAB SUBDOMAINS REPRESENTING GENERAL AREAS OF ADAPTIVE BEHAVIOR

Independent Functioning CTAB Subdomains:

Eating Skills

Toileting Skills

Grooming Skills

Dressing Skills

Leisure Skills

Functional Academics CTAB Subdomains:

Time-Telling Skills

Economic Skills

Math Skills

Reading and Writing

Social/Communication CTAB Subdomains:

Interaction

Language Concepts

APPENDIX T:
ADAPTIVE BEHAVIOR OBSERVATION SYSTEM (ABOS):
INSTRUCTIONAL ENGAGEMENT DECISION MAKING GUIDE

ABOS DECISION MAKING GUIDE:

CODING STUDENT ENGAGEMENT IN INSTRUCTIONAL ACTIVITIES

Directions: For each interval on the student's ABOS, review the ratings in each of the five areas and answer the following questions.

Question #1: Was primary skill activity coded as 19 (none)?

If yes, code interval as not engaged.
If no, go to Question #2.

Question #2: Was student behavior coded as 1 (attention) or 2 (engaged)?

If yes, go to Question #3.
If no, code interval as not engaged.

Question #3: Was primary instructional activity coded as 6 (none)?

If yes, code interval as not engaged.
If no, go to Question #4.

Question #4: Was primary instructional activity coded as 2 (physical/visual structure)?

If yes, code interval as engaged.
If no, go to Question #5.

Question #5: Was primary instructional activity coded as 5 (other) and noted as either computer, video, independent seatwork or other non-interactional intervention strategy?

If yes, code interval as engaged.
If no, go to Question #6.

Question #6: Was primary interactor coded as 8 (no staff)?

If yes, code interval as not engaged.
If no, go to Question #7.

Question #7: Was adult/peer instruction-related behavior coded as 8 (none)?

If yes, code interval as not engaged.
If no, code interval as engaged.

APPENDIX U:
ADAPTIVE BEHAVIOR OBSERVATION SYSTEM (ABOS): OPPORTUNITY FOR INSTRUCTIONAL ENGAGEMENT DECISION MAKING GUIDE

ABOS DECISION MAKING GUIDE:

CODING OPPORTUNITY FOR STUDENT ENGAGEMENT IN INSTRUCTIONAL ACTIVITIES

Directions: For each interval on the student's ABOS, review the ratings in each of the five areas and answer the following questions.

Question #1: Was primary skill activity coded as 19 (none)?

If yes, code interval as no opportunity.
If no, go to Question #2.

Question #2: Was primary instructional activity coded as 6 (none)?

If yes, code interval as no opportunity.
If no, go to Question #3.

Question #3: Was primary instructional activity coded as 2 (physical/visual structure)?

If yes, code interval as opportunity.
If no, go to Question #4.

Question #4: Was primary instructional activity coded as 5 (other) and noted as either computer, video, independent seatwork or other non-interactional intervention strategy?

If yes, code interval as opportunity.
If no, go to Question #5.

Question #5: Was primary interactor coded as 8 (no staff)?

If yes, code interval as no opportunity.
If no, go to Question #6.

Question #6: Was instruction-related behavior coded as 8 (none)?

If yes, code interval as no opportunity.
If no, code interval as opportunity.

APPENDIX V:

INTERVENTION QUALITY RATINGS AND DECISION MAKING GUIDE

INTERVENTION QUALITY RATINGS

5	4	3	2	1
Intervention described by teacher includes individualized, specific instructional strategies and/or a positive behavior support plan (antecedent and reinforcement strategies), which are implemented systematically (on a consistent basis).	Intervention described by teacher includes general instructional strategies and/or reinforcement strategies, which are implemented systematically (on a consistent basis).	Intervention described by teacher includes only practice (e.g., worksheets), punishment, and/or incidental teaching strategies. Instructional or reinforcement strategies are not included in description.	Intervention described by teacher includes only accommodations and/or modification.	Teacher reported that an intervention was in place, but intervention strategies were not described.

INTERVENTION DECISION MAKING GUIDE:

RATING QUALITY

Directions: For each specific adaptive behavior domain, read the teacher interview and answer the following questions.

Question #1: Did the teacher indicate that there was an intervention in place?

If yes, go to Question #2.
If no, rate intervention as 1.

Question #2: Did the teacher describe the intervention at all?

If yes, go to Question #3.
If no, rate intervention as 1.

Question #3: Did the intervention described by the teacher include any strategies beyond accommodations and modifications?

If yes, go to Question #4.
If no, rate intervention as 2.

Question #4: Did the intervention described by the teacher include any reinforcement or instructional strategies that were implemented systematically?

If yes, go to Question #5.
If no, rate intervention as 3.

Question #5: Did the intervention described by the teacher include specific instructional strategies and/or a positive behavior support plan that included both antecedent and reinforcement strategies?

If yes, rate intervention as 5.
If no, rate intervention as 4.

APPENDIX W:

SPECIFIC NEED CONGRUENCE RATINGS AND DECISION MAKING GUIDE

SPECIFIC NEED CONGRUENCE RATINGS

5	4	3	2	1
Both an IEP goal and a quality teacher-reported intervention each address the student's specific area of need (e.g., decoding skills, initiating interactions).	Either an IEP goal or a quality teacher-reported intervention addresses the student's specific area of need (e.g., decoding skills, initiating interactions).	IEP goal and/or teacher-reported intervention address only the general area of the identified need (e.g., reading skills, expressive language skills) OR teacher-reported intervention addressed need, but was rated as low quality (e.g., 2 or 3).	Teacher reported that intervention was in place to address student's need, but no description of the intervention was provided.	No IEP goal or teacher-reported intervention that address the student's specific need.

DECISION MAKING STEPS:
RATING SPECIFIC NEED CONGRUENCE

Directions: For each specific area of identified student need, read the teacher interview and the student's IEP goals and answer the following questions.

Question #1: Is there both an IEP goal and a quality teacher-reported intervention (e.g., rated as 4 or 5) that each address the student's specific area of need?

If yes, rate need congruence as 5.
If no, go to Question #2.

Question #2: Is there either an IEP goal or a quality teacher-reported intervention (e.g., rated 4 or 5) that addresses the student's specific area of need?

If yes, rate need congruence as 4.
If no, go to Question #3.

Question #3: Is there an IEP goal that addresses the student's general area of need (e.g., reading skills, fine motor skills, expressive language skills)?

If yes, rate need congruence as 3.
If no, go to Question #4.

Question #4: Did the teacher report that an intervention was in place that addresses the student's need, but the intervention was rated as poor quality (e.g., rated as 2 or 3)?

If yes, rate need congruence as 3.
If no, go to Question #5.

Question #5: Did that teacher report that an intervention was in place to address the student's need, but did not describe the intervention?

If yes, rate need congruence as 2.
If no, rate need congruence as 1.

APPENDIX X:

COMPARISON BETWEEN STUDENT NEEDS IDENTIFIED FROM THREE DATA SOURCES

Table 71. Student adaptive behavior needs identified from three data sources

Adaptive Behavior Domains	Student Need Based on PLEP		Student Need Based on CTAB & SIB-R		Student Need Based on Teacher Interview	
	Number of Students	Percent of Students	Number of Students	Percent of Students	Number of Students	Percent of Students
Independent Functioning	6	33.3	11	61.1	17	94.4
Eating	1	5.6	3	16.7	8	44.4
Toileting	1	5.6	8	44.4	8	44.4
Hygiene	0	0.0	14	77.8	7	38.9
Dressing	0	0.0	3	16.7	7	38.9
Domestic	0	0.0	0	0.0	7	38.9
Independence/ Mobility	6	33.3	0	0.0	14	77.8
Leisure	0	0.0	8	44.4	11	61.1
Functional Academics	16	88.9	12	66.7	18	100.0
Preacademics	8	44.4	0	0.0	8	44.4
Reading	9	50.0	10	55.6	14	77.8
Math	7	38.9	9	50.0	13	72.2
Writing	7	38.9	0	0.0	14	77.8
Money	1	5.6	9	50.0	11	61.1
Time	1	5.6	9	50.0	11	61.1
Prevocational	8	44.4	0	0.0	17	94.4
Prevocational	8	44.4	0	0.0	17	94.4
Vocational	0	0.0	0	0.0	0	0.0
Social/Communication	17	94.4	18	100.0	18	100.0
Behavior	6	33.3	18	100.0	13	72.2
Communication	12	66.7	14	77.8	16	88.9
Social Skills	14	77.8	15	83.3	17	94.4
Motor	5	27.8	0	0.0	8	44.4
Fine Motor	4	22.2	0	0.0	8	44.4
Gross Motor	1	5.6	0	0.0	0	0.0

APPENDIX Y:
CASE STUDY SUMMARY DATA

Table 72. Case study summary data

Adaptive Behavior Domains	PLEP Need	CTAB & SIB-R Need	Teacher-Reported Need	IEP Goal	Teacher-Reported Intervention	Student Need Addressed	Student Need Not Addressed
General Adaptive Behavior Domains							
Independent Functioning	6	11	17	7	17	6	12
Functional Academics	16	12	18	16	18	14	4
Prevocational/Vocational	8	0	17	9	17	15	3
Social/Communication	17	18	18	17	18	16	2
Specific Adaptive Behavior Domains							
Eating	1	3	8	1	8	4	5
Toileting	1	8	8	1	8	3	8
Grooming	0	14	7	0	7	3	12
Dressing	0	3	7	0	7	5	4
Domestic	0	0	7	0	7	5	2
Independence/Mobility	6	0	14	7	14	12	3
Leisure	0	8	11	0	11	5	8
Preacademics	8	0	8	9	8	10	1
Reading	9	10	14	10	14	13	5
Math	7	9	13	6	13	12	4
Writing	7	0	14	7	14	10	4
Money	1	9	11	3	11	8	4
Time	1	9	11	2	11	3	9
Prevocational	8	0	17	9	17	15	3
Vocational	0	0	0	0	0	0	0
Communication	12	14	16	12	16	9	9
Social Skills	14	15	17	15	17	16	1
Challenging Behavior	6	18	13	2	13	16	2
Motor	5	0	8	5	8	6	3

APPENDIX Z:
REASONS UNDERLYING IEP TEAM DECISIONS TO WRITE IEP GOALS: SPECIFIC AREAS OF ADAPTIVE BEHAVIOR

Table 73. Teacher reports of reasons why IEP teams wrote IEP goals in each area of adaptive behavior

	Number of Teachers	Percent of Teachers
Eating (N = 2)		
Skills Do Not Meet Developmental Expectations	1	50.0
Skills Slightly Below Average, But Important To Address At This Time	0	0.0
Parents Wanted This Skill Addressed	1	50.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Toileting (N = 1)		
Skills Do Not Meet Developmental Expectations	1	100.0
Skills Slightly Below Average, But Important To Address At This Time	0	0.0
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Personal Hygiene/Grooming (N = 1)		
Skills Do Not Meet Developmental Expectations	1	100.0
Skills Slightly Below Average, But Important To Address At This Time	0	0.0
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Dressing (N = 3)		
Skills Do Not Meet Developmental Expectations	2	66.7
Skills Slightly Below Average, But Important To Address At This Time	1	33.3
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Domestic (N = 1)		
Skills Do Not Meet Developmental Expectations	1	100.0
Skills Slightly Below Average, But Important To Address At This Time	0	0.0
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	0	0.0

Table 73. (continued)

	Number of Teachers	Percent of Teachers
Independence/Mobility (N = 3)		
Skills Do Not Meet Developmental Expectations	1	33.3
Skills Slightly Below Average, But Important To Address At This Time	0	0.0
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	1	33.3
More Of A Priority Than Other Areas of Need	1	33.3
Other	0	0.0
Leisure (N = 2)		
Skills Do Not Meet Developmental Expectations	2	100.0
Skills Slightly Below Average, But Important To Address At This Time	0	0.0
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Preacademics (N = 5)		
Skills Do Not Meet Developmental Expectations	3	60.0
Skills Slightly Below Average, But Important To Address At This Time	1	20.0
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	1	20.0
Reading (N = 11)		
Skills Do Not Meet Developmental Expectations	8	72.7
Skills Slightly Below Average, But Important To Address At This Time	0	0.0
Parents Wanted This Skill Addressed	1	9.1
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	1	9.1
Other	1	9.1
Math (N = 11)		
Skills Do Not Meet Developmental Expectations	8	72.7
Skills Slightly Below Average, But Important To Address At This Time	0	0.0
Parents Wanted This Skill Addressed	2	18.2
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	1	9.1
Other	0	0.0

Table 73. (continued)

	Number of Teachers	Percent of Teachers
Writing (N = 11)		
Skills Do Not Meet Developmental Expectations	8	72.7
Skills Slightly Below Average, But Important To Address At This Time	1	9.1
Parents Wanted This Skill Addressed	1	9.1
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	1	9.1
Other	0	0.0
Money (N = 5)		
Skills Do Not Meet Developmental Expectations	4	80.0
Skills Slightly Below Average, But Important To Address At This Time	0	0.0
Parents Wanted This Skill Addressed	1	20.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Time (N = 5)		
Skills Do Not Meet Developmental Expectations	3	60.0
Skills Slightly Below Average, But Important To Address At This Time	1	20.0
Parents Wanted This Skill Addressed	1	20.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Prevocational (N = 4)		
Skills Do Not Meet Developmental Expectations	2	50.0
Skills Slightly Below Average, But Important To Address At This Time	1	25.0
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	1	25.0
Other	0	0.0
Communication (N = 14)		
Skills Do Not Meet Developmental Expectations	10	71.4
Skills Slightly Below Average, But Important To Address At This Time	1	7.1
Parents Wanted This Skill Addressed	2	14.3
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	1	7.1
Other	0	0.0

Table 73. (continued)

	Number of Teachers	Percent of Teachers
Social (N = 9)		
Skills Do Not Meet Developmental Expectations	7	77.8
Skills Slightly Below Average, But Important To Address At This Time	2	22.2
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Challenging Behavior (N = 6)		
Skills Do Not Meet Developmental Expectations	4	66.7
Skills Slightly Below Average, But Important To Address At This Time	1	16.7
Parents Wanted This Skill Addressed	0	0.0
Classroom Curriculum Doesn't Address This Area	0	0.0
More Of A Priority Than Other Areas of Need	1	16.7
Other	0	0.0

APPENDIX AA:
REASONS UNDERLYING IEP TEAM DECISIONS NOT TO WRITE IEP GOALS: SPECIFIC AREAS OF ADAPTIVE BEHAVIOR

Table 74. Teacher reports of reasons why IEP teams did not write IEP goals in each area of adaptive behavior

	Number of Teachers	Percent of Teachers
Eating (N = 16)		
Skills Meet Developmental Expectations	10	62.5
Not Important To Address This Area Now	0	0.0
Skills Addressed At Home By Family	3	18.7
Classroom Curriculum Addresses This Area	1	6.2
Intervention Being Implemented	1	6.2
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	1	6.2
Other	0	0.0
Toileting (N = 17)		
Skills Meet Developmental Expectations	10	58.8
Not Important To Address This Area Now	0	0.0
Skills Addressed At Home By Family	2	11.8
Classroom Curriculum Addresses This Area	1	5.9
Intervention Being Implemented	3	17.6
Too Difficult To Intervene	1	5.9
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Grooming (N = 17)		
Skills Meet Developmental Expectations	9	52.9
Not Important To Address This Area Now	0	0.0
Skills Addressed At Home By Family	6	35.3
Classroom Curriculum Addresses This Area	1	5.9
Intervention Being Implemented	1	5.9
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Dressing (N = 15)		
Skills Meet Developmental Expectations	8	53.3
Not Important To Address This Area Now	0	0.0
Skills Addressed At Home By Family	6	40.0
Classroom Curriculum Addresses This Area	1	6.7
Intervention Being Implemented	0	0.0
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Domestic (N = 17)		
Skills Meet Developmental Expectations	5	29.4
Not Important To Address This Area Now	1	5.9
Skills Addressed At Home By Family	7	41.2
Classroom Curriculum Addresses This Area	3	17.6
Intervention Being Implemented	1	5.9
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0

Table 74. (continued)

	Number of Teachers	Percent of Teachers
Independence/Mobility (N = 15)		
Skills Meet Developmental Expectations	6	40.0
Not Important To Address This Area Now	3	20.0
Skills Addressed At Home By Family	2	13.3
Classroom Curriculum Addresses This Area	2	13.3
Intervention Being Implemented	1	6.7
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	1	6.7
Leisure (N = 16)		
Skills Meet Developmental Expectations	7	43.7
Not Important To Address This Area Now	2	12.5
Skills Addressed At Home By Family	2	12.5
Classroom Curriculum Addresses This Area	3	18.7
Intervention Being Implemented	0	0.0
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	1	6.2
Other	1	6.2
Preacademics (N = 13)		
Skills Meet Developmental Expectations	12	92.3
Not Important To Address This Area Now	1	7.7
Skills Addressed At Home By Family	0	0.0
Classroom Curriculum Addresses This Area	0	0.0
Intervention Being Implemented	0	0.0
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Reading (N = 7)		
Skills Meet Developmental Expectations	3	42.8
Not Important To Address This Area Now	1	14.3
Skills Addressed At Home By Family	0	0.0
Classroom Curriculum Addresses This Area	2	28.6
Intervention Being Implemented	1	14.3
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Math (N = 7)		
Skills Meet Developmental Expectations	2	28.6
Not Important To Address This Area Now	1	14.3
Skills Addressed At Home By Family	0	0.0
Classroom Curriculum Addresses This Area	2	28.6
Intervention Being Implemented	1	14.3
Too Difficult To Intervene	1	14.3
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0

Table 74. (continued)

	Number of Teachers	Percent of Teachers
Writing (N = 7)		
Skills Meet Developmental Expectations	0	0.0
Not Important To Address This Area Now	2	28.6
Skills Addressed At Home By Family	0	0.0
Classroom Curriculum Addresses This Area	3	42.8
Intervention Being Implemented	1	14.3
Too Difficult To Intervene	1	14.3
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Money (N = 13)		
Skills Meet Developmental Expectations	4	30.8
Not Important To Address This Area Now	5	38.5
Skills Addressed At Home By Family	1	7.7
Classroom Curriculum Addresses This Area	1	7.7
Intervention Being Implemented	1	7.7
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	1	7.7
Other	0	0.0
Time (N = 13)		
Skills Meet Developmental Expectations	5	38.5
Not Important To Address This Area Now	2	15.4
Skills Addressed At Home By Family	0	0.0
Classroom Curriculum Addresses This Area	4	30.8
Intervention Being Implemented	1	7.7
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	1	7.7
Other	0	0.0
Prevocational (N = 14)		
Skills Meet Developmental Expectations	5	35.7
Not Important To Address This Area Now	7	50.0
Skills Addressed At Home By Family	0	0.0
Classroom Curriculum Addresses This Area	1	7.1
Intervention Being Implemented	1	7.1
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Communication (N = 4)		
Skills Meet Developmental Expectations	3	75.0
Not Important To Address This Area Now	0	0.0
Skills Addressed At Home By Family	0	0.0
Classroom Curriculum Addresses This Area	0	0.0
Intervention Being Implemented	1	25.0
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0

Table 74. (continued)

	Number of Teachers	Percent of Teachers
Social (N = 9)		
Skills Meet Developmental Expectations	0	0.0
Not Important To Address This Area Now	0	0.0
Skills Addressed At Home By Family	0	0.0
Classroom Curriculum Addresses This Area	3	33.3
Intervention Being Implemented	6	66.7
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0
Challenging Behavior (N = 12)		
Skills Meet Developmental Expectations	5	41.7
Not Important To Address This Area Now	1	8.3
Skills Addressed At Home By Family	1	8.3
Classroom Curriculum Addresses This Area	2	16.7
Intervention Being Implemented	3	25.0
Too Difficult To Intervene	0	0.0
Less of a Priority Than Other Areas of Need	0	0.0
Other	0	0.0

APPENDIX AB:
ADAPTIVE BEHAVIOR OBSERVATION SYSTEM (ABOS) CUTOFF SCORES: GENERAL AREAS OF ADAPTIVE BEHAVIOR

Table 75. ABOS cutoff scores for each general area of adaptive behavior

	Low	Medium	High
Independent Functioning	< 09.00	09.00 – 14.99	15.00+
Functional Academics	< 24.00	24.00 – 32.99	33.00+
Prevocational/Vocational	< 00.01	00.01 – 01.99	02.00+
Social/Communication	< 01.99	00.20 – 04.99	05.00+

APPENDIX AC:

TEACHER QUOTES: SPECIFIC INTERFERING FACTOR CATEGORIES

Table 76. Teacher quotes regarding factors that make addressing student adaptive behavior needs difficult

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
Need Itself: Characteristics of the need itself makes it difficult to intervene.	"...because academics are very difficult for her."
	"Getting her not to become aggressive if she's not, getting her to know that she can make a choice without becoming aggressive has been a challenge."
	"Some days he's so good and some days there's just a challenge. It's just a challenge to get him to follow any kind of direction. We used to count to 3, well then he'd wait until 3, until just before you said 3 to do it. Well now we only count to 2 and he'll just wait and test you to all the ends, and then I hate to have that model for other kids in our class. What happened once was we had another little boy in our class who was watching him and you know he was picking up and doing those kind of behaviors. I mean I understand he has to be in our class as opposed to a behavior classroom because he would just...watching the other behaviors he would just...because of his function level. But he's still smart enough to know how he can get the other kids...so it's pretty difficult. And some days are harder than others."
	"It's [student's behavior] an ongoing thing all the time."
	"...because of the behaviors involved, that is, physical aggression. That's always difficult to work with."
	"...because it's just one of the characteristics of autism. It's just hard for them to share or take turns."
	"...because there are times when she does have some real problems as far as trying to run away or just not following direction. It kind of depends on the day she is having. There are days when any direction, almost any direction, is going to be a problem. Sometimes she just doesn't...just plain will not...refuses to comply."
	"He has very selective listening. It's what he wants to hear when he chooses to."
	"Some days he's just totally gone instantly. You can see it in his eyes. He's not here, he's just totally...sometimes he'll just break down and cry, and it's a really loud, open cry like "I'm totally gone and I don't have any clue how to get back to it." Usually, he goes to the floor because he knows then that you can't get him up. And he'll just lay there."
	"...because you don't know sometimes what he's thinking or you just don't understand what he's saying. He'll just mumble off a sentence, especially if he's nervous or excited. You have no, it might say something about a planet then all the way say something about a dentist, then something about lunch, and all in one sentence. And you have no clue what he said or what he wants or what he's trying to describe."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
	"Trying to get him to think in smaller increments and maybe narrow it down."
	"Trying to figure out what he's really thinking or what he wants to share with me. And there are some things you can get out of him no problem, but some things, like I'm supposed to know. But sometimes he has so many, I think his mind might be going like this, I can just picture a tornado in there and it's just grabbing things out, you know."
	"...because he won't talk. I don't know if he understands or if he has difficulty verbalizing. I don't know when he has emotions involved either, if he knows how to express himself. He cries with everything"
	"Her functioning level is so low that her language is all...she may come to school for instance and say, 'New coat' and I'll say, 'What about it?'" You know, she left out so many words. A lot of times you don't know if she's asking a question or trying to tell you something, because she isn't using enough words."
	"It is because he doesn't speak."
	"He just has no listening skills and it's a learned behavior kind of thing. They almost learn not to listen."
	"It's difficult to get her to truly understand what it is we're, if we ask her or tell her to do something."
	"It's just getting her to do it independently is challenging."
	"It's to get her to understand that, hey, when you're done with that last project. you're done. So trying to get her to realize that she needs to, that she doesn't have to wait for our response to her to move from that situation. But I think she's used to having someone tell her what to do all the time. "
	"...she's supposed to be working independently, but she'll go 10 or 15 minutes without getting anything done."
	"She can get during those times...if she doesn't want to do that work without someone prompting her constantly, she also, she's not one to just sit either. And so she'll start messing around, doing things that she shouldn't be doing."
	"Not that he's unwilling to do it, it's just, his social play, I would say, is not good at all. He's zoned. He's in his, it's stimulating, it's not an interaction."
	"Just trying to get him to listen to you. Even to give you eye contact is the hardest thing. He won't look at you or he'll make a face. And you know that was one of the things, you need to look at the teacher."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
	"..because it is so hard for her and she can't do it without, she can't just think about it. 8 plus 1 is 9, she can't just think about it and have it. There's nothing there, none, zero."
	"He doesn't have the desire and also with his disability, and I don't know that much about autism or that Asperger's syndrome, but [he] is really so much more aware of himself than what's going with peers and doesn't pick up on cues that whether or not he's accepted by kids. And I'm not sure that's important to him. At times he verbalizes that someone didn't play with him or someone isn't nice to him, but then if we follow up and investigate a little bit we often find that [he] didn't interpret it correctly, probably because of his disability. In speech and language services, they're working with him on recognizing teasing, joking around, kidding, because both with adults and with kids he takes things so literally. That's sometimes difficult for him. And if he's playing a team type activity, which he doesn't necessarily engage in, but when he has maybe been interested in playing basketball or something if he's not a key player or doesn't have the ball then he doesn't think he's participating. So there again it's kind of the perception, so that's difficult to convey that to him that he is a part of it or that he has friends if he has perceived someone's..."
Need Is Unchangeable: The student's need is viewed as a stable trait or as resistant to intervention.	"...because autistic students are sight learners not verbal."
	"I can't change how he focuses on activities."
	"It's just not in his makeup to interact."
	"It's always going to be his downfall. I don't see that improving a lot. He has a lot of habits already instilled in him that's going to be very hard to break."
	"There are so many behaviors that [he] has and trying to do an intervention, it doesn't work with [him]. It doesn't work. That has been very difficult, because that's something that is just [him]. And there's nothing you can do about that."
Presence of Confounding Need: Student need(s) in another area (challenging behavior, communication) interferes with implementation of the intervention.	"Lack of cooperation. He is very distractible and it is hard to get him to focus on a task when trying to teach him."
	"Noncompliance, behavior, not wanting to listen to what you're saying."
	"...because some days he's more compliant than other days. "
	"But it's a hard thing and it comes again to the focus, the focusing in on an activity."
	"The fact that he doesn't want to do it."
	"Just her willingness to cooperate."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
	"It becomes frustrating, because you know he could do something, but you can't change the focus of what he needs to do."
	"...because he's stubborn. And if he doesn't want to do something he'll sit there and his pencil will [go] to the floor and his paper will go on the floor or his hands will go down at his side. And it's just refusal. I don't think it's frustration. He understands. I know that he understands, 'cause he'll look and sometimes he'll start and he won't finish."
	"...he gets tired of doing this and just goes, 'I don't want to do it anymore.' He's smart."
	"...because he's so noncompliant with going along with what you're doing. And I would say out of 5 days of the week, I would say 2 days he'll really be good about sitting down and getting his activities done."
	"Noncompliance, not wanting to do it."
	"Just her unwillingness at certain times to want to do anything. We've had instances in the last couple of weeks where she just won't read, turn the page. Some real behavior problems."
	"...getting GF to read out loud."
	"I think just her day. And you know really we've learned, a day like last Thursday where we couldn't get her to complete a task, we wouldn't try to play a game with her. We wouldn't have even attempted that."
	"We can't get him to go in [to the bathroom]."
	"Often times he won't even answer a 'Who', 'What', 'Where', 'Why', 'Wh' questions. So getting him to write, GF will write two [sentences] if it's a good day. Some days he will finish the sentence and that's all he will write. So it's extremely difficult to work on written language."
	"Just getting her to sit there and do it is probably the hardest part."
	"It depends on what kinds of things are forefront in her mind. A lot of times its 'Who's absent?' 'But why is she absent?' So all of a sudden, out of nowhere, you're talking about the ugly duckling and she'll say, 'But why is [he] gone?' So it's kind of hard to predict what is primary in her thinking that day."
	"...the feedback from [her], you just don't get that, and some days she just has some really bizarre things that she says."
	"The language with her with conversations, it's hard."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
Student's Reaction to Environmental Factors: Student's sensitivity to environmental factors, such as noise level, interferes with intervention implementation.	"The sensory factors make it difficult for her and she is very keen on that she has choices. Another choice is not to go in there if it's too loud. So it's [lunch room] a scary place for her."
	"...you're always trying to see how it's going to work with the regular kids...you know it might work with our kids, is he being real shy? But we might even go into [the other special education teacher's] room and try to do something with her class. And you know is he going to interact with those kids? What's the noise level going to be like in that class as far as being social? You know if it's too loud then automatically he will cry or sign to go to the bathroom or he wants to get out. So trying to work on social skills, but trying to get him used to the noise level and stuff is real hard."
	"The sensitivity to the noise is probably one of the hardest things that we've had. That's one of the most things that we've really had to work on is to try to desensitize him from the noises. The distracting noises you know, even when you go to the gym how loud it is and in the lunch room. It's very loud. So he can't handle that. It is overwhelming."
Limited Level of Student Success or Slow Rate of Student Progress: Despite intervention, student progress is limited or slow.	" It's difficult. Not difficult coming up with strategies to use, but difficult in the fact that sometimes we see minimal progress in that area."
	"...because I don't always really see a lot of progress."
	"...it's been a very slow process.."
	"Not hard in the way that we've come up with ways or strategies to get that to happen, but it's been difficult. I've seen him grow so much from where he was, but yet it's been a long process to get him to sit at a computer and take a turn. I mean he's come a long way, a very long way. But that was difficult to get him to that point, to be able to do that."
	"...because this concept is fairly new to him and I don't think he really comprehends what he's doing other than I take him through the steps."
	"...because even when we've gone through every new skill, it's hard for her to meet 80% on the final test in any of the math skills."
	"...we've tried every strategy we could think of to get him to be in a group and participate in a reading group, but it's been very difficult."
Student is Not Obtaining Independence in Skill Area: Despite the fact that a skill has been taught, the student does not demonstrate the skill without adult prompting or support.	"What I find with her, tasks that she'll do for me independently during one on one work, she won't know when it's completed sufficiently for her. For example, there was a puzzle that I taught her to do in one on one, she did it like that. It went to independent, I moved it over to independent work and she just played with it."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
	"It isn't very hard to develop, but sometimes it is difficult to implement, because she still doesn't take that [PECS] card with her automatically. It still requires an adult to make sure she has the card with her before she goes."
	"...because you can't sit him down and say, '[Student] stay here and do this.' He needs to have somebody constantly saying, 'No, sit down, do this,' 'No, sit down, do this, come on, you can do it.' He's independent, but to get an activity totally completed, no."
	"She just really, still at this point in her life, needs someone all the time. And sometimes that's physically impossible."
Lack of Strategies to Address Need Area or Not Knowing How to Intervene: Only a limited number of strategies available to address need or teacher does not know how to address student's need.	"It's easy to get her to go [to the bathroom], but having her have a bowel movement here or just even in the toilet, its hard. So that's just something that, I don't know what else to do."
	"Well, there's not that many strategies to use. There are only a few things that you can do."
	"We don't really know what to do, we're just guessing."
	"...I don't know how to make it different for her."
	"...because trying to find the strategies that work for him, you know, what really will get him to tune in. And we haven't gotten there yet."
	"I think it's been, not to find a communication system has been difficult, very difficult."
Limited Experience with Intervention: Teacher has limited experience in implementing a specific intervention.	"He's not consistent with it [communication system] and I'm first year in using this stuff, too. I just don't have experience with this kind of stuff. So it's like, 'Are we feeling this out together or not?'"
Choosing Specific Equipment to Use: Determining what intervention equipment is most appropriate for both the teacher and the student.	"Trying to figure out what communication device is most appropriate for him and easiest for me to switch between, you know, what we're doing, our different activities."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
Having to Generate New Strategies to Address Student Need(s): Teacher has to frequently find new intervention strategies, because intervention loses effectiveness with student.	"Thinking up new ideas. Keeping him interested in it. A lot of time I expect too much and then it's very frustrating for both of us. It's like, 'Oh, this didn't work' and he's looking at me like, 'What are you doing?'"
	"Just trying to find reinforcement, what he will work for. Because he'll do some things and then all of a sudden it's not reinforcing any more."
Nature of the Intervention: Characteristic(s) of the intervention or intervention strategies required to address student need.	"...because there'll be something that needs to be written or an idea that she can't come up with on her own. I've got to prompt it, pull it out, give her examples, or 'What about this? What about that?'"
	"...we have to constantly repeat things to him so he knows what we mean."
	"Right now we have to physically remove him. And there are days he escalates even more and he'll wet his pants."
	"It's just a constant moving, trying to keep constant with him."
	"...because you are always having to think ahead, what's coming. And if you can prepare him for it, you're fine. Once he's really upset, it's harder for him to settle down. You don't always think far enough ahead."
	"It's just a lot of modeling for her...you just about have to model exactly what you want her to say and have her repeat it. And so it really keeps you on your toes. It's like you're doing her a disservice if you don't correct her every single time."
	"It really takes a lot of redirecting."
	"...because it's a lot of saying 'Don't do that' or "Get a Kleenex' or that."
	"She needs a lot more one on one. She needs a lot more manipulatives, and it's harder for her to follow along during math with the whole group. You often times have to kind of go off on your own and teacher her one on one."
	"It's not hard for him to do, it's hard for us to keep him going."
	"...because sometimes it takes two of us to get him to work."
	"On some days just keeping up with her physically is difficult, having the energy to keep going. She has a lot of energy."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
Lack of Facilities or Staff: School does not have the necessary facilities or enough staff to address student's needs.	"Probably the most difficult thing would [be] not having the facilities right here."
	"Not having enough help to do the hand over hand and the actual showing."
	"...we just don't have the facilities or staff for that program."
	"I have a room full of kids and when they're all here I'm usually not alone, but if I am, I can't sit right there. It's not having that extra help around when I need it that makes it difficult."
	"Trying to implement a strategy for task completion without her one to one help."
Lack of Curriculum and/or Materials: Teacher or school does not have the necessary curriculum or materials to address student's need.	"Usually there is not enough laundry to have 8 kids fold laundry at the same time; they get one towel."
	"There's no curriculum for that program."
	"When you don't have the materials you need."
	"...because of the fact that you know this curriculum will have to be developed for [him], because we've not had that situation to deal with.."
Amount of Time Required to Plan, Organize, and/or Prepare: Significant amount of time related to getting materials together, developing materials, making modifications, and/or structuring environment is required each day in order to implement intervention.	"...because you have to get all kinds of pictures. It's difficult to get everything set up and try to figure out, and make all the pictures, and figure out all the sizes for them. It takes a lot of time."
	"When you have to make up everything it's just time consuming."
	"Just the time. Just the time and making sure that you have the right steps. You do have to think through like your wording of things, because you want as few and as direct of an instruction as possible. It takes time to come up with that."
	"It has to be really structured for [her]. So, whatever activity we do we have to have cues and prompts set up for her. It's a lot of time in advance to prepare for that."
	"...because of all the time it takes and planning."
	"Just getting everything broken down for her so that it's helping her independence. It's just setting things up so they are organized enough for her. It's not difficult to do, it's just taking the time to make it step by step."
	"The time when you have to make everything."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
Amount of Time Required to Monitor Progress: Significant amount of time is required to collect progress monitoring data.	"It takes time and making sure you keep track of the writing that he's done through the week."
Amount of Time Required to Implement Intervention: Significant amount of time is involved in teaching student or implementing intervention.	"Time that I could be working with other kids. Times we could be working individually or whatever. Last week, the day she was so awful, it took just one of us sitting in here with her a lot of the time, or outside the door so she wouldn't open and slam it. So you lose a lot of time sometimes."
	"When I first started, there was no time, none for me to do anything. I never saw this desk, because I was with him all the time. It just takes a lot of time to do it."
	"He has very poor fine motor skills, as in mechanics of getting his fingers around whatever device we have to help him zip up, because it is such a small area we are working with. So it takes more time, more adaptations."
	"It takes a lot of time to get him to do tasks. It takes a lot of someone's time."
Insufficient Time to Cover All Student Needs: Lack of time to adequately address all of student's needs.	"There's so many thing you want to teach in the limited amount of time. And probably just making sure that the basic things are covered."
	"The time factor, to try to teach some of the stuff, I don't have that."
Parent Reluctance to Talk About Need or to Have Need Addressed: Student's parent(s) does not want to acknowledge student's need or have it addressed at school.	"Some people get real defensive if you bring it up. I mean I try to be real, bring it up related to situations. Some parents are pretty receptive, but you get a few parents like his that just, well, 'I don't want you to talk about that' I don't know if they don't want to talk about it because they're embarrassed or what."
	"I think her parents' reluctance for us to work on that. In a way, I think that they are almost afraid, and I can understand that."
Amount of Parent Follow Through at Home: Efforts related to facilitating follow through with interventions at home or concerns regarding amount of follow through at home.	"Making sure that they follow through at home."
	"I don't know how much he uses it [communication system] at home. I have sent pictures home. I just don't know."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
Different Expectations at Home and School: Expectations regarding student's display of skills or behavior are different at home than at school.	"I think he's never been expected to do it at home, whereas another student, he's been told to do things and he does them and he engages in them, and he knows what he's supposed to do."
	"...because he's just, it's the crossover from home to school, what we expect, what's different there."
	"It's difficult to address at school when it's not addressed at home. It's kind of accepted at home. So it makes her be even more set in her ways. So it comes down to the point when we have to force it, which is not good."
	"Partly it's learned behavior. She's learned that if she doesn't have her things ready then mom will get them ready for her. Of if she's not on school on time then it's okay. So, it's kind of an excuse thing where she really has to learn the responsibility part."
Demands of Collaboration: Demands related to having to work with other people in order to develop and/or implement intervention or to ensure that the intervention is implemented.	"...you need to work more with the classroom teacher and make sure she has a way to deal with it."
	"It's getting everyone together to make sure that everything is being done the same way through all of them."
	"...it's going to be something new and it's going to have to be creative and the autism coordinator through AEA will definitely have to be involved to try to make a curriculum to address some of these needs, because it's never happened before."
	"You're working with so many different people. It's the time to get together and make sure you have all the bases covered and the areas covered."
Problem with Staff Consistency or Compliance in Implementing Intervention: School staff implement intervention differently than expected by teacher.	" I don't know how to say this, but, what your strategy might be when you're teaching something else as opposed to listening with the [associate] in the room trying to teach that student. And it might not be the same way. And that's real hard. And then you're asked to kind of let them do their own thing and kind of back off for awhile. And then you get frustrated, because you can hear while you're teaching something else. They won't take suggestions, so that's my most frustrating thing."
	"With him actually eating, they have quit forcing him to eat things that he doesn't like, which it's about time. If we could only get the rest of the personnel trained to not throw things at him like that."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
Skill Lacks Relevance for Student: Target skill is not relevant for student outside of school or student does not understand the relevance of the skill.	"He doesn't connect why he's doing it. He doesn't understand 'Why am I doing this?' He doesn't understand point A to point B. It's not 'What am I going to get?', it's 'What's the point to this?'"
	"...because it's not relevant in any other area of his life except school right now."
	"I don't think he understands why he's doing it."
	"He doesn't understand why he has to do something and get it done."
Accurately Assessing Student Comprehension or Progress: Student's understanding or skill level is difficult to evaluate.	"And you never know for sure what he's comprehending and what he's not, because it doesn't come out real well, on any of it. He could have a bad day and not do anything. It's constantly changing, so that makes it difficult."
	"Just trying to figure out what they do and do not know."
	"...you don't know if it is making sense to her or not."
	"To try and understand what he's grasping and what he isn't grasping."
Student Integration: Demands related to mplementing interventions when student is integrated in general education setting.	"It's pretty easy for us, but as he moves into the regular classroom then it becomes difficult. It's the demands on the teacher to balance what he needs with the rest of the class."
	"Well, especially for [him], and a lot of other kids, you need to deal with it when it is happening. And a lot of times it's happening in the regular classroom when I'm not there."
Diverse Individual Needs: Significant variability in the needs of the individual student and/or in the needs of other special education students.	"Because you have to know all of the different individual needs. And exactly pinpoint where they're going and what works with that child. Sometimes they need more visual learning. Sometimes they need more auditory. It depends on their learning style and what's best for them."
	"I have five children that use different devices."
	"All the different levels of kids, I think."
	"...because he's at a different level in every one of them."
Mismatch between Student Needs and Program: Program is not structured to address the student's specific need(s).	"We're not equipped and we don't have that type of program."
	"I guess partly in my program, because we don't deal with [leisure skills] and the opportunity hasn't come up."

Table 76. (continued)

Teacher-Reported Interfering Factor	Teacher Quotes (N = 141)
Obtaining Communication Devices: Inability to obtain communication devices in a timely manner.	"It is the plan of [AEA], or their schedule, and getting one [communication device] to try in the classroom. It gets frustrating." "...trying to get the devices."

APPENDIX AD:
TEACHER-REPORTED INTERFERING FACTORS:
SPECIFIC AREAS OF ADAPTIVE BEHAVIOR

Table 77. Teacher-reported interfering factors in each specific area of adaptive behavior

	Number of Responses	Percent of Responses
Eating (N = 3)		
Student Reaction to Environmental Factors	1	33.3
Different Expectations at Home and School	1	33.3
Problem with Staff Consistency or Compliance in Implementing Interventions	1	33.3
Toileting (N = 2)		
Presence of Confounding Need	1	50.0
Lack of Strategies to Address Need or Not Knowing How to Intervene	1	50.0
Personal Hygiene/Grooming (N = 4)		
Need Itself	1	25.0
Presence of Confounding Need	1	25.0
Nature of the Intervention	1	25.0
Parent Reluctance to Talk About Need or Have Need Addressed	1	25.0
Dressing (N = 2)		
Amount of Time Required to Implement Intervention	1	50.0
Different Expectations at Home and School	1	50.0
Domestic (N = 11)		
Presence of Confounding Need	2	18.1
Limited Student Success or Slow Rate of Progress	2	18.1
Skill Lacks Relevance for Student	2	18.1
Lack of Curriculum or Materials	1	9.0
Insufficient Time to Cover All Student Needs	1	9.0
Different Expectations at Home and School	1	9.0
Accurately Assessing Student Comprehension or Progress	1	9.0
Diverse Individual Needs	1	9.0
Independence/Mobility (N = 7)		
Need Itself	1	14.3
Lack of Facilities or Staff	1	14.3
Lack of Curriculum or Materials	1	14.3
Amount of Time Required to Plan, Organize, and/or Prepare	1	14.3
Parent Reluctance to Talk About Need or Have Need Addressed	1	14.3
Skill Lacks Relevance for Student	1	14.3
Mismatch Between Program and Student Need	1	14.3

Table 77. (continued)

	Number of Responses	Percent of Responses
Leisure (N = 7)		
Presence of Confounding Need	2	28.5
Lack of Strategies to Address Need or Not Knowing How to Intervene	2	28.5
Need Is Unchangeable	1	14.3
Amount of Time Required to Plan, Organize, and/or Prepare	1	14.3
Mismatch Between Program and Student Need	1	14.3
Academics in General (N = 4)		
Need Itself	1	25.0
Problem with Staff Consistency or Compliance in Implementing Interventions	1	25.0
Accurately Assessing Student Comprehension or Progress	1	25.0
Diverse Individual Needs	1	25.0
Preacademics (N = 2)		
Having to Generate New Strategies to Address Student Need	1	50.0
Lack of Curriculum or Materials	1	50.0
Reading (N = 10)		
Presence of Confounding Need	3	30.0
Limited Student Success or Slow Rate of Progress	3	30.0
Lack of Strategies to Address Need or Not Knowing How to Intervene	2	20.0
Nature of the Intervention	1	10.0
Demands of Collaboration	1	10.0
Math (N = 10)		
Lack of Strategies to Address Need or Not Knowing How to Intervene	2	20.0
Accurately Assessing Student Comprehension or Progress	2	20.0
Need Itself	1	10.0
Presence of Confounding Need	1	10.0
Nature of the Intervention	1	10.0
Amount of Time Required to Plan, Organize, and/or Prepare	1	10.0
Demands of Collaboration	1	10.0
Diverse Individual Needs	1	10.0
Writing (N = 4)		
Presence of Confounding Need	2	50.0
Need Is Unchangeable	1	25.0
Amount of Time Required to Monitor Progress	1	25.0

Table 77. (continued)

	Number of Responses	Percent of Responses
Money (N = 0)		
Time (N = 0)		
Prevocational (N = 23)		
Presence of Confounding Need	4	17.4
Student Is Not Obtaining Independence in Skill Area	3	13.0
Need Itself	2	8.7
Nature of Intervention	2	8.7
Lack of Facilities or Staff	2	8.7
Lack of Curriculum or Materials	2	8.7
Amount of Time Required to Plan, Organize, and/or Prepare	2	8.7
Amount of Time Required to Implement Intervention	1	4.4
Insufficient Time to Cover All Student Needs	1	4.4
Different Expectations at Home and School	1	4.4
Demands of Collaboration	1	4.4
Skill Lacks Relevance for Student	1	4.4
Student Integration	1	4.4
Communication (N = 24)		
Need Itself	8	33.3
Presence of Confounding Need	2	8.3
Nature of the Intervention	2	8.3
Amount of Time Required to Plan, Organize, and/or Prepare	2	8.3
Amount of Parent Follow Through at Home	2	8.3
Obtaining Communication Devices	2	8.3
Need Is Unchangeable	1	4.2
Limited Student Success or Slow Rate of Progress	1	4.2
Student Is Not Obtaining Independence in Skill Area	1	4.2
Limited Experience with Intervention	1	4.2
Choosing Specific Equipment to Use	1	4.2
Diverse Individual Needs	1	4.2
Social (N = 10)		
Need Itself	3	30.0
Presence of Confounding Need	2	20.0
Student Reaction to Environmental Factors	2	20.0
Need Is Unchangeable	1	10.0
Limited Student Success or Slow Rate of Progress	1	10.0
Student Integration	1	10.0

Table 77. (continued)

	Number of Responses	Percent of Responses
Challenging Behavior (N = 19)		
Need Itself	8	42.1
Nature of Intervention	5	26.3
Amount of Time Required to Implement Intervention	2	10.5
Need Is Unchangeable	1	5.3
Having to Generate New Strategies to Address Student Need	1	5.3
Demands of Collaboration	1	5.3

APPENDIX AE:
TEACHER QUOTES: SPECIFIC SOLUTION CATEGORIES

Table 78. Teacher quotes regarding solutions required to address all student's needs

Teacher-Reported Solution Factors	Teacher Quotes
Appropriate Undergraduate Training for Special Education Teachers: Necessity of appropriate training in college for special education teachers related to working with students with autism.	"This was my first teaching job and I came in here basically blind. When I first started, I didn't know what was going on. I wish I'd had the right training in college to work with them [students with autism]." "...being trained beforehand in college would have helped."
Appropriate Undergraduate Training for General Education Teachers: Having appropriate training in college related to working with students with autism would make it easier for general education teachers to address student needs.	"I wish they [general education teachers] had more exposure to autism in college." "College training. I think any time you're doing inclusion in the classroom...I know one [general education] teacher that had him that had no training in college, and it was a rough deal."
Additional or On-going Training for Special Education Teachers: Opportunities for special education teachers to learn new information through additional training or on-going training.	"I think letting myself go out there and take workshops in certain specific areas." "I feel new to teaching. I went to back to school in my 40s and got my teaching job. This is the only teaching job I've ever had and so I still feel that I have a lot to learn. Training would really help in trying to learn more about autism." "I guess ongoing training. They're always learning something new in the field of autism and if we could stay updated that would help a great deal. It changes all the time and an article here and an article there just doesn't cut it." "Training on how to deal with including the child into the classroom to make it the least stressful situation you can for the teacher and the student and the other students in the classroom." "We aren't necessarily trained real well in autism. And it's a field that...an area that keeps changing all the time and we learn more things. We need more information." "Training." "I don't feel like I have been given enough training in autism."

Table 78. (continued)

Teacher-Reported Solution Factors	Teacher Quotes
Additional Training for General Education Teachers: Opportunities for general education teachers to learn new information regarding teaching students with autism through additional training.	"There's not enough training to general ed teachers. We're expected to put special ed students in classrooms where general ed teachers are not anywhere close to being trained." "If the regular classroom teacher is going to get these children, the teachers need to have some training on what to do with them. And the school district needs to pay for it."
Autism Training for Teacher Associates: Providing teacher associates with specific autism training.	"...for the para's that are involved getting, them receiving specific autism training."
Training for All School Staff Involved with Student: Having all school staff who work with student receive the appropriate type of training.	"If we are going to deal with students like him, the school system, the school district, needs to make sure we all have the training."
Consistent Training for All Persons Involved the with Student: Having all individuals who work or interact with the student receive appropriate training to facilitate better collaboration.	"I think training of all of the people who are involved in the student's life being the same, so that we are all thinking on the same wavelength. Parents, any support people, people that are involv[ed] in their child's life, faculty, other students in the building, administrators." "Kind of a philosophical training for everyone, I think would help."
More Planning and/or Preparation Time: Extra time for planning or preparing for activities related to addressing student needs.	"Just the planning time. I would just say the extra time." "Time, because everything is pretty much structured for that particular student. So just the time to get it organized."
More Time to Implement Additional Intervention Strategies: Extra time to implement additional intervention strategies with the student.	"More time. Time is the main thing, I think. There's a lot of things I would like to try, more types of strategies, but you just don't have the time to get any of that done."

Table 78. (continued)

Teacher-Reported Solution Factors	Teacher Quotes
More Time to Support General Education Teachers: Extra time to provide informational support and assistance to general education teachers.	"The classroom teacher needs to have everything under their belts. They need to teach that child. They just need so much information and assistance. I wish I had more time."
More Frequent Informational or Consultative Support from AEA Staff or Other Professionals: More frequent support from AEA staff or other professionals, in terms of providing the special education teacher with assistance in understanding and intervening with student needs.	"More support. We didn't get any support this year, not when the AEA team showed up last week and there's only three weeks of school left when they came. They came last week and he got here in February and we knew three weeks before he was coming." "I don't get a lot of support. I am a loner, definitely a loner in the system. I want to see more support in this system." "Support by the AEA team. If they're there and they're helping you and supporting you." "I think we need more support and ideas from other people." "Somebody telling me what to do all the time." "Because every student is different—each autistic student I've had—I really feel it's important to have somebody that you can say—'Hey what do I need to do, give me some ideas'."
Better Informational or Consultative Support from AEA Staff: Better support from AEA staff in terms of definitiveness in making recommendations, transition assistance with new students, and consultation with all school staff involved with the student.	"AEA is pretty good, but they're a little wishy-washy. I would rather that they take a stand. I don't like flopping on both sides, I want to go down the middle. So it's just my personality, I guess. I want it all laid out up front. They like to wish-wash things, too much." "I wish they [AEA] would let us know how to handle, what we are supposed to do. We found out he was [coming] before he came, but we didn't find out what to do or what we might be faced with his coming to our new school." "They [AEA] need to let his teachers know what they want him to do, what are his goals, what techniques do you want us to use to shape the behavior to get him to stop being so defiant. They need to let the classroom teacher and the aide know what techniques to use. And then what to do if he gets upset about it. We don't know. There needs to be more information exchange."
More Money/Funding: More teacher pay or funds for materials.	"I need more money. About $10,000 more would probably cover it for me." "Having the resources to get what you need to implement. You'd like to go out and buy a lot of the stuff that you know would help or make a difference, books or things like that."

Table 78. (continued)

Teacher-Reported Solution Factors	Teacher Quotes
Improved Facilities: Better special education facilities at the school in terms of class size or organization.	"...maybe one of the other things is making one of our rooms as an academic room and one as a prevocational room and a domestic-type room that you work on those kinds of skills to develop around our curriculum."
	"A bigger room."
More Teacher Associates: Having additional teacher associates available to assist special education teacher or provide one-on-one support to student.	"At times we could use extra people, extra associates."
	"I think funding. I think a full-time aide is very definite and would be so beneficial for him."
	"I would like to see with this amount of students, more help as far as a classroom associate. So when you are attending to 20 IEPs, that's very difficult, because you're trying to attend to each one of those twenty individuals' needs. And they may have goals in two or three areas. And so that's very difficult. I would say support or help, with an extra body in the room."
	"So I just think that it's really important that there are people who can be hired for children who have problems, because it allows them to be in the classroom more."
Appropriate Curriculum: Having curriculum or more appropriate curriculum in place to assist or guide teacher in addressing student's needs.	"When I first started here, this is my first year at this school, the lack of curriculum was the biggest problem, because finding materials that we could use. To me that's been a big struggle."
	"The major thing is the curriculum, where do you go? There's no set curriculum in our program here."
	"Sometimes I'm not sure that the academic curriculum, which is what we have in this kind of school setting, is always appropriate. So, balancing that."
Additional Technology Resources: Having more technology resources available at school.	"More technology. Our school is pretty much limited on it."
Resources to Provide Community Experiences for Student: Having the necessary resources to provide students with community experiences.	"...having the resources to, being able to get them involved in the community."
Administrative Support: Support from administration.	"Administration's support."

Table 78. (continued)

Teacher-Reported Solution Factors	Teacher Quotes
General Education Teacher Willingness to Try Different Strategies: Cooperation from general education teachers in terms of a willingness to try different interventions or strategies.	"General ed teachers need to have an open mind and listen to try different things."
Improved Teaming or More Frequent Teaming: Better or more frequent communication and collaboration among the IEP team members or the individuals working with the student.	"I guess it takes a whole team effort, and we don't have a good team yet. So it's been very difficult." "Better communication between everybody so that we are all working toward the same thing with the same student." "I'd have another person to work with me. I'd make it teams, teams of people."
Interagency Collaboration Focusing on Long-Term Goals for the Student: Collaboration between appropriate agencies and systems to address the students needs and facilitate attainment of long-term goals.	"Just giving them education in a classroom setting is not going to do it for them in terms of long-term changes. So I think the systems working together and in place all at once, I think could improve their chances."
Guidance Counselor Services: Having access to guidance counselor services for student.	"When they got elementary counselors in place in all the buildings a few years ago, we were told that they would not be working with our kids. And that's frustrating. They go in and do things with the regular classroom and they don't come in and do anything with ours. I see our kids, and especially [him], as really being in need of those kinds of things."
Private Counseling Services for Student that is Obtained by Parents: Having parents obtain private counseling services to address emotional needs of the student.	"Parents of kids like him should be getting some help for them. After all, they're in a special ed program, they have emotional problems. Unfortunately, a lot of these parents aren't willing to provide that for their kids, or sometimes deny the problem so we don't get very far that way either. So I feel like we are kind of up against a wall sometimes with what we are able to do. Unless their emotional needs are addressed, we often don't get anywhere behaviorally. So it's a catch-22. You just go around in a cycle."

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